STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-401-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		00500 HRS	10101	016	DEC 22/08

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 1 FAN ROTOR BLADES		ALL	4000

ZONES	ACCESS PANELS
411	

MECH | INSP

MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 FAN ROTOR BLADES. N72-31-02-6A

1. 1st-Stage Fan Blade Airfoil Inspection of Surface Damage and Cracks (Fig. 601)

A. General

(1) This inspection is done when it is necessary for a detailed inspection during a regular engine inspection check, such as made necessary by the Maintenance Review Board, or when you think there is foreign object damage.

B. Equipment

(1) Protective mat - Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).

(2) Light source

(3) Mirror

(4) Gloves or a lint free cloth

C. Access

(1) Location Zones
411 Left Engine
422 Right Engine

D. Examine the Fan Blade Airfoil for Surface Damage and Cracks (Fig. 602).

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

MECH | INSP

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU HANDLE THE BLADES.

CAUTION: USE CAUTION WITH ANY ELECTRICAL EQUIPMENT USED NEAR THE BLADES. IF ANY ELECTRICAL SOURCE TOUCHES THE BLADE, CURRENT MAY PASS THROUGH TO THE BLADE AND CAUSE AN ARC BURN. THIS COULD RESULT IN A DECREASE IN THE MATERIAL STRENGTH OF THE BLADE. THIS COULD ALSO CAUSE CRACKS TO APPEAR IN THE BLADE.

(3) Use the equipment as follows to help find damage.

(a) Use a strong light and mirror.

(b) Lightly rub the blade edge with gloves or a cloth (Which will catch on lifted material) to help find damage.

(c) Use your fingernails and fingertips to help find the size and condition of the damage.

EXAMPLE: Your fingernails can help you find if the damage has a sharp or rounded bottom.

(4) Examine the tip (Area A) of the blade.

(a) Examine the tip for tears, which are not permitted.

(b) Examine the tip for nicks, dents and other damage.

(c) Blade tip color change (for example, a light blue color) is permitted.

MECH | INSP

CAUTION: VERY CAREFULLY EXAMINE ALL DAMAGE TO THE LEADING AND TRAILING EDGES THAT IS IN THE AREA BETWEEN THE PART SPAN SHROUD AND THE PLATFORM. NICKS IN THE LEADING AND TRAILING EDGE BECOME MORE IMPORTANT THE CLOSER THEY ARE TO THE ROOT OF THE BLADE.

(5) Examine the leading and trailing edges and airfoil surfaces for nicks, dents and other damage.

(a) Examine the leading and trailing edges and airfoil surfaces for local damage such as lifted edges or compressed material.

(b) You must repair areas of lifted edges and compressed material which have small radii or rough edges (AMM 72-31-02/801).

NOTE: Use your fingernail to help identify a local, sharp nick or dent.

(c) It is permitted for blades with erosion to continue in service.

NOTE: Erosion is where a layer of the surface is gone. Signs of erosion are many, very small dents that feel like sand paper. Erosion limits are given at shop overhaul.

(d) Do not blend blades that have damage which is more than the limits in Table 601.

1) Keep the fan blades that were removed for possible subsequent repair, as specified by an approved repair source.

Table 601
Airfoil Damage Limits

EXAMINE THESE AIRFOIL AREAS	MAXIMUM DEPTH OF DAMAGE ON THE AIRFOIL		
	PERMITTED WITHOUT REPAIRS	PERMITTED AFTER REPAIRS	PERMITTED FOR 50 HOURS OF SERVICE AFTER REPAIRS
Area A The Tip	0.020 inch (0.508 mm)	0.750 inch (19.050 mm)	1.000 inch (25.400 mm)
Area B Shroud to Airfoil Radius	No Damage is Permitted	No Damage is Permitted	No Damage is Permitted
Area C Leading and Trailing Edges	0.005 inch (0.127 mm)	0.250 inch (6.350 mm)	0.300 inch (7.629 mm)
Area D Platform to Airfoil Radius	No Damage is Permitted	No Damage is Permitted	No Damage is Permitted
Leading and Trailing Edges	0.005 inch (0.127 mm)	0.150 inch (3.810 mm)	None (See Permitted After Repairs)
Area E Other Surfaces	0.020 inch (0.508 mm)	0.030 inch (0.762 mm)	0.060 inch (1.524 mm)
Area F Other Surfaces	0.005 inch (0.127 mm)	0.250 inch (6.350 mm) See *[1]	0.300 inch (7.629 mm) See *[1]

*[1] This limit may be found to be 0.500 inch (12.7 mm) maximum in the CRI Manual. The higher limit is allowed for necessary bead peen and ECI at overhaul facility.

(6) Examine the airfoil for arc burn.

NOTE: Signs of arc burn are small circular or semicircular heat damaged areas on the blade surface that can have very small rounded dents, cracks, burned or melted areas.

MECH | INSP

(a) Arc burn is not permitted.

(7) Examine the airfoil for cracks.

(a) You must repair all cracks (AMM 72-31-02/801).

(8) If you are done with the fan blade inspections, do the steps that follow:

(a) Remove the protective mat from the inlet cowl.

(b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.

2. 1st-Stage Fan Blade Part Span Shroud Inspection for Damage (Fig. 603)

A. General

(1) The part span shrouds will be called the shrouds in this task.

(2) This inspection is done when it is necessary for a detailed inspection during a regular engine inspection check, such as made necessary by the Maintenance Review Board, or when you think there is foreign object damage.

B. Equipment

(1) Protective mat - Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).

C. Access

(1) Location Zones
411 Left Engine
422 Right Engine

D. Procedure

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

MECH | INSP

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: USE GLOVES ON YOUR HANDS WHEN YOU HANDLE THE BLADES. THE BLADES ARE SHARP AND CAN CAUSE INJURY TO YOUR HANDS.

(3) Loosen all of the 1st-stage fan blades, if necessary, to make sure they are free to move at the shroud face at the 12 o'clock location.

(4) Examine the fan blades for shrouds that are broken, fractured, have cracks, or are not there.

(a) A fan blade with a shroud that is broken, fractured, has cracks, or is not there is not permitted.

(b) If you find a shroud(s) that has cracks do the steps that follow:

1) Examine the shrouds of all the fan blades for cracks.

a) Carefully examine the shroud radius (Area C) that is on the concave side of the airfoil.

NOTE: It is very important to examine the side of Area C that is nearest to the root of the blade.

2) Remove the damaged fan blade(s), the blades that are on each side of it, and the matched moment blade of each removed blade.

NOTE: For each fan blade that has a shroud(s) that has cracks, you must remove six fan blades.

(c) If you find a shroud(s) that is broken (fractured) or not there do the steps that follow:

1) Remove and replace the damaged blade and two adjacent blades along with their three moment weighed pairs. Report the serial numbers of the adjacent blades.

2) Lubricate the shrouds and dispatch the aircraft.

3) Obey a 25 hour flyback limit until you do a NDI inspection of all concave shrouds per PW4ENG 72-478.

4) NDI reinspect all concave shrouds per SB PW4ENG 72-478 within 40 cycle.

5) Visually inspect at every 1/2 A-check (lubrication interval).

NOTE: This applies to the pre SB PW4ENG 72-536 fan rotors only. Inspect all phase III and post SB PW4ENG 72-536 fan rotors at every A-check.

6) NDI reinspect at next C-check.

7) NDI reinspect at all overhauls.

8) Notify P&W of any cracked fan blades found reporting:
- Total time
- Total cycles
- Part number and change letter
- Part serial number and heat code
- Engine serial number
- Cycles since last inspection.

(5) Examine Area A (shroud contact edge) for damage.

(a) No damage or blends are permitted in Area A.

(6) Examine Area B (hardface surface of the shroud) for cracks, worn areas or damage on the hardface.

(a) With the rotor stopped and not held, manually push one blade rearward in the blade slot at the 12 o'clock position and pull the adjacent blade forward.

NOTE: You can hit the thick part of the shroud with your hand or with a soft rubber mallet to release the blades.

(b) Examine the shrouds for worn areas on the mating surfaces.

1) If there are areas where the hardface is worn through, do not use the fan blade.

NOTE: If the hardface is worn through, the operation of the engine can distort and peen the titanium shroud.

(c) Erosion, mismatch or coverage that is not complete on the shroud hardface surface is permitted if it meets the conditions below (Fig. 604).

1) A maximimum of 0.060 inch (1.524 mm) is permitted on one edge and on one side of the shroud only.

2) The surface must be well rounded with no sharp edges.

3) The depth must not be more than 0.020 inch (0.508 mm).

(d) Chips in the hardface surface which are larger than 0.060 inch (1.524 mm) are not permitted.

(e) If you think there is a crack, do a fluorescent penetrant inspection.

1) Cracks are not permitted.

(7) Examine Area C (shroud radius) for damage (Fig. 604).

(a) Repair all damage that is not more than the repair limits (AMM 72-31-02/801).

1) The repairs must not go below the airfoil surface.

(b) Sharp edges are not permitted (AMM 72-31-02/801).

(c) If the damage is more than the blend limits, do not use the fan blade.

(8) Examine Area D (fillet radius) for damage (Fig. 603).

(a) Isolated damage with rounded bottoms that is less than 0.005 inch (0.127 mm) in depth is serviceable.

(b) No other damage is permitted.

(9) Examine Area E (shroud upper and lower surfaces) for damage (Fig. 603).

MECH | INSP

(a) No damage is permitted.

(b) You must repair all damage that is less than the repair limits (AMM 72-31-02/801).

1) The maximum depth of a blend is 0.010 inch (0.254 mm).

(c) Fan blades that have shrouds that are broken, have cracks or are not there, are not permitted.

(10) Examine Area F (shroud edges) for damage (Fig. 603).

(a) No damage is permitted.

(b) You must repair all damage that is less than the repair limits (AMM 72-31-02/801).

1) The maximum blend depth is 0.060 inch (1.524 mm).

(11) Turn the rotor to put the adjacent two blades at the 12 o'clock position.

(12) Do this inspection procedure again until you examine all the fan blades.

(13) If you are done with the fan blade inspections, do the steps that follow:

(a) Remove the protective mat from the inlet cowl.

(b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.

3. 1st-Stage Fan Blade Airfoil Inspection for Bends and Curl (Fig. 605)

A. General

(1) This inspection is done when you think there is foreign object damage (FOD).

B. Equipment

(1) Protective mat - Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).

MECH | INSP

C. Access

(1) Location Zones
411 Left Engine
422 Right Engine

D. Procedure (Fig. 605)

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU HANDLE THE BLADES.

(3) Examine the tip of the blade for bends and curl.

NOTE: A curl is a small bend.

(a) Tip curl is permitted as follows:

1) Index 1 must not be more than 0.200 inch (5.080 mm).

2) No more than three adjacent blades with tip curl are permitted.

3) No more than a total of five blades with tip curl are permitted.

4) Tip curl with cracks or tears is not permitted.

(b) A blade with the conditions that follow can continue in service without repair for 50 hours.

1) Index 1 must not be more than 2.000 inches (50.800 mm).

2) Index R must not be more than 0.500 inch (12.700 mm).

MECH | INSP

(4) Examine the leading and trailing edges for bends.

(5) If the bends are more than the limits, remove the fan blade and keep it for a possible subsequent repair.

(6) If you are done with the fan blade inspections, do the steps that follow:

(a) Remove the protective mat from the inlet cowl.

(b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.

4. 1st-Stage Fan Blade Platform Inspection for Damage (Fig. 606)

A. General

(1) This inspection is done when you think there is foreign object damage (FOD).

B. Equipment

(1) Protective mat - Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).

C. Access

(1) Location Zones
411 Left Engine
422 Right Engine

D. Procedure

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU HANDLE THE BLADES.

(3) Examine the platform surfaces for nicks, dents, and scratches (Fig. 606, and Table 602).

(a) Use 10X magnification.

(b) Repair the blades that have damage (AMM 72-31-02/801).

TABLE 602
PLATFORM INSPECTION LIMITS

EXAMINE THESE AREAS	MAXIMUM DEPTH OF DAMAGE ON THE PLATFORM	
	PERMITTED WITHOUT REPAIRS	PERMITTED IF REPAIRED
Dimension 1 (For Reference)	0.300 Inch (7.620 mm) minimum	
Area A Platform Surface	0.005 Inch (0.127 mm)	0.020 inch (0.508 mm)
Area B Root Face	0.005 Inch (0.127 mm)	0.040 inch (1.016 mm)

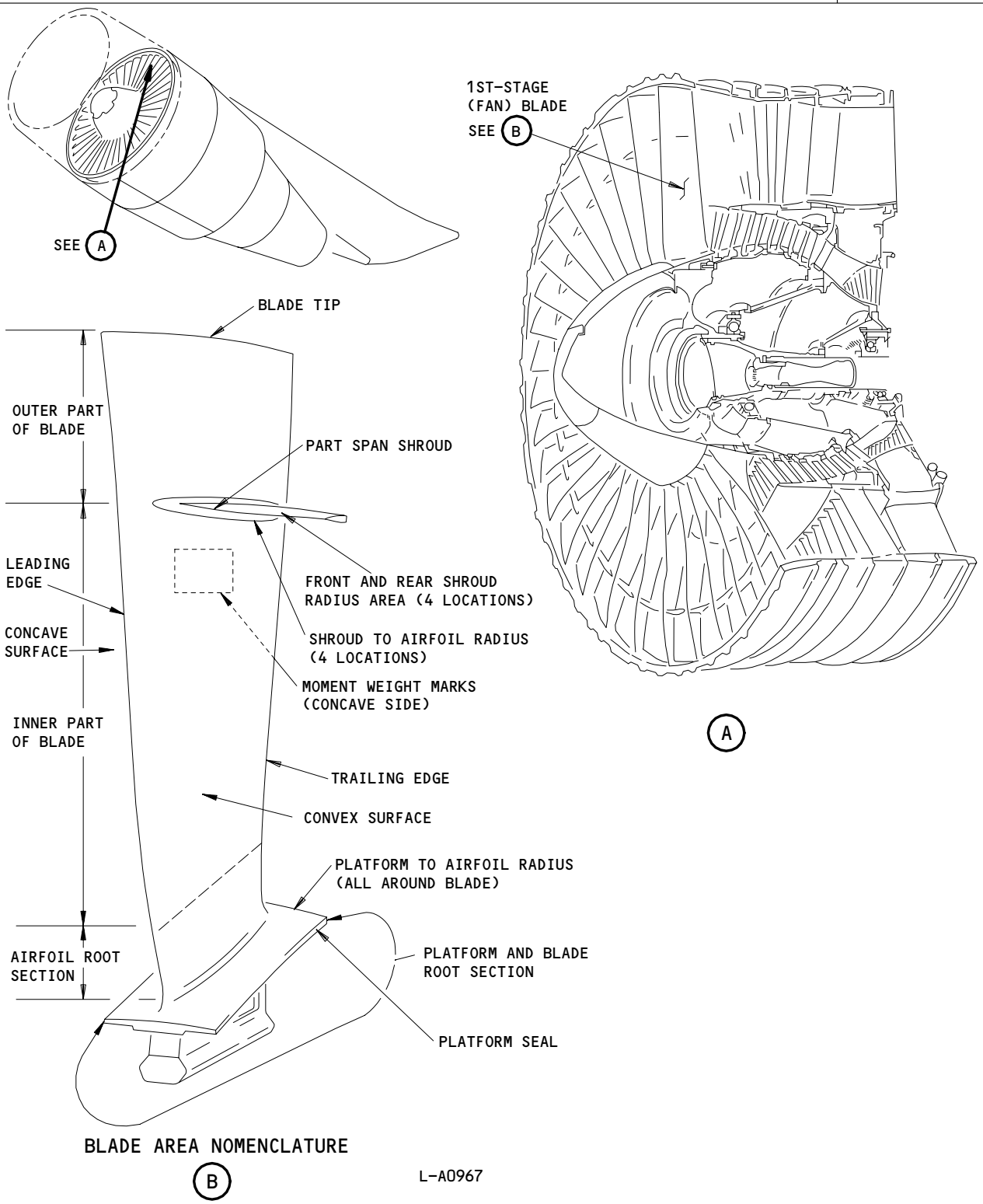
(4) Examine the platform for cracks.

(a) Remove fan blades that have cracks in the platform, because cracks are not permitted in the platform and you cannot repair cracks.

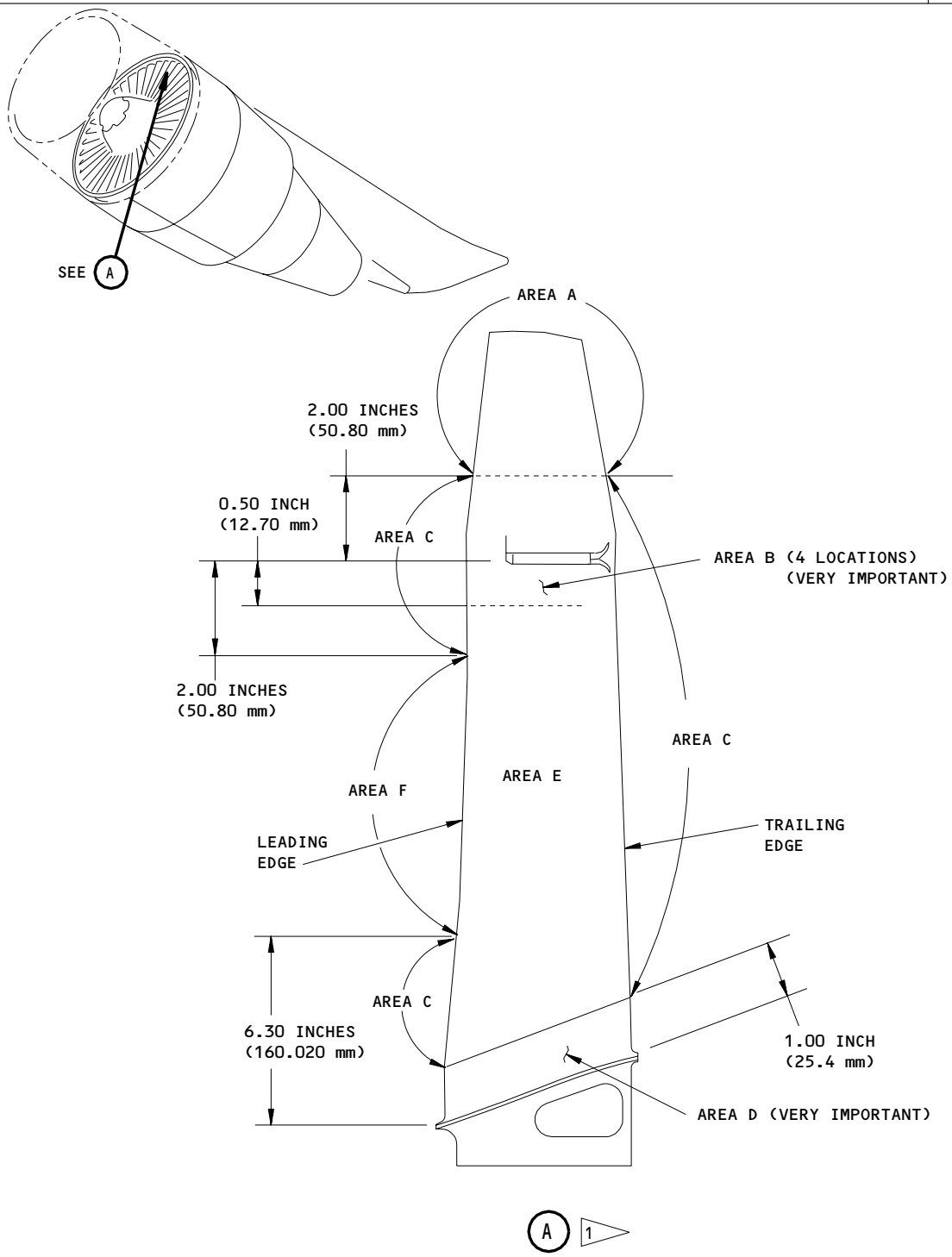
(5) If you are done with the fan blade inspections, do the steps that follow:

(a) Remove the protective mat from the inlet cowl.

(b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.



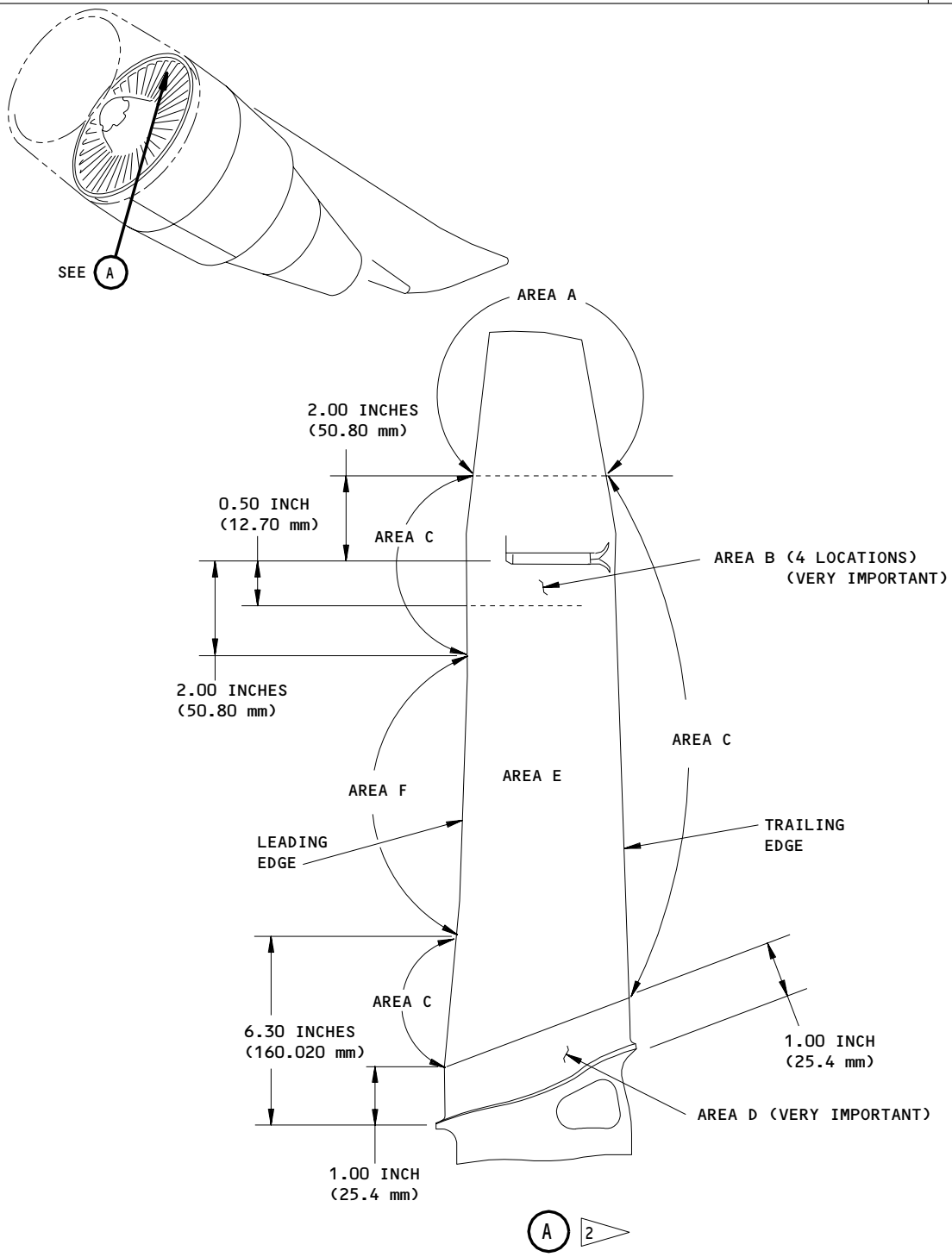
Name of 1st-Stage Blade Areas
Figure 601



1 ENGINES PRE-PHASE III

L-A8821 (0896)

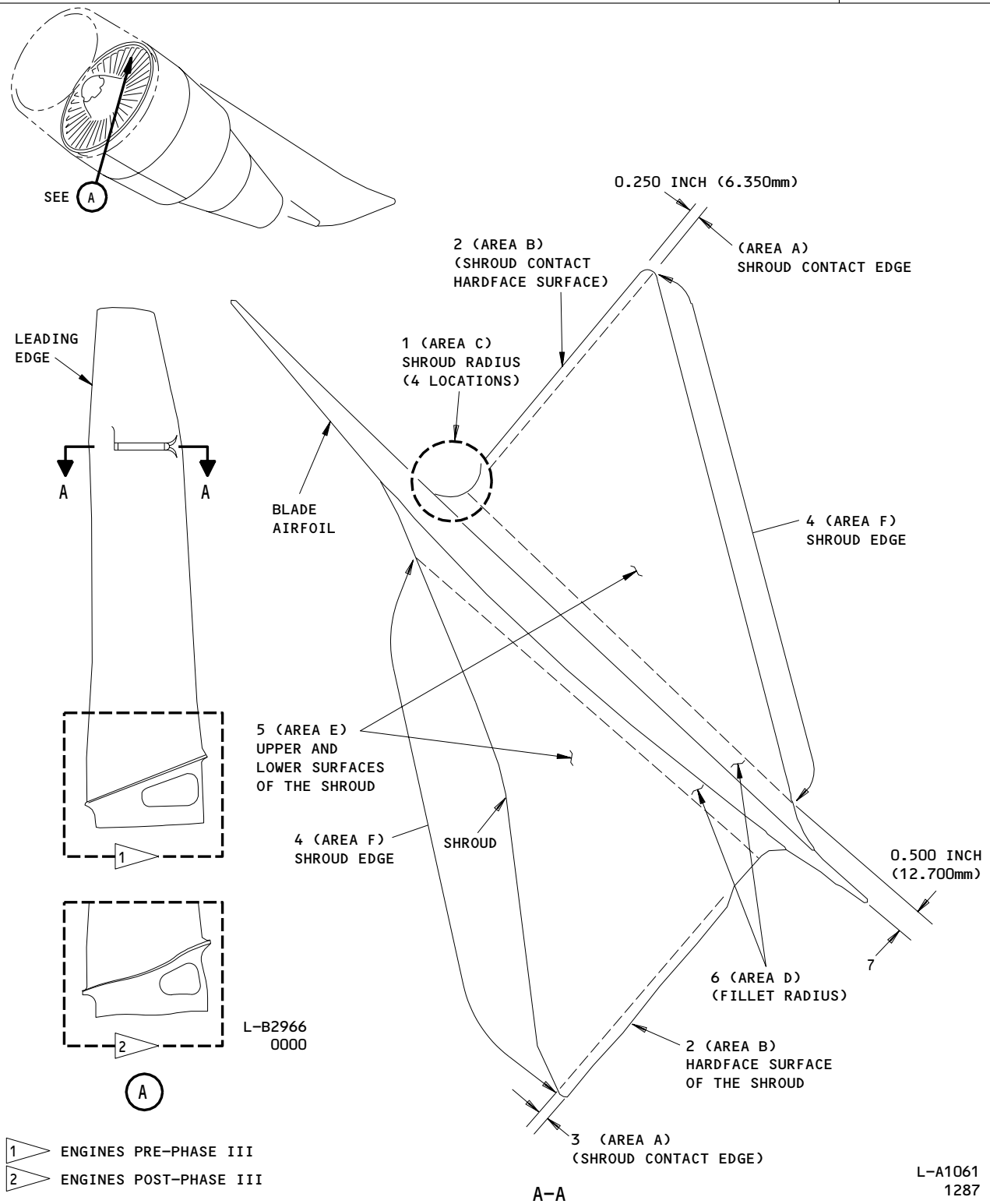
1st-Stage Fan Blade Damage Limits
Figure 602 (Sheet 1)



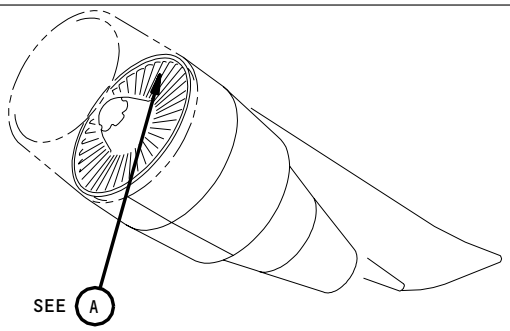
2 ENGINES POST-PHASE III

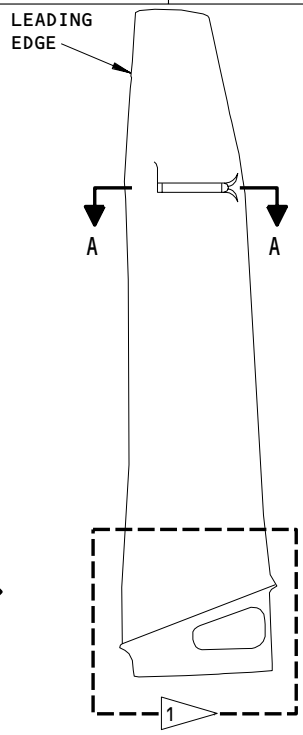
L-A8821 (0896)

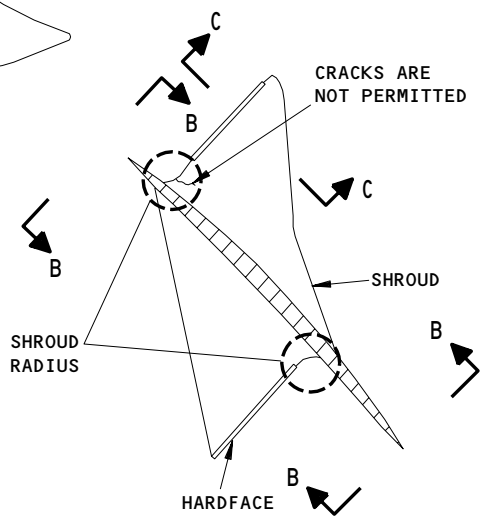
1st-Stage Fan Blade Damage Limits
Figure 602 (Sheet 2)



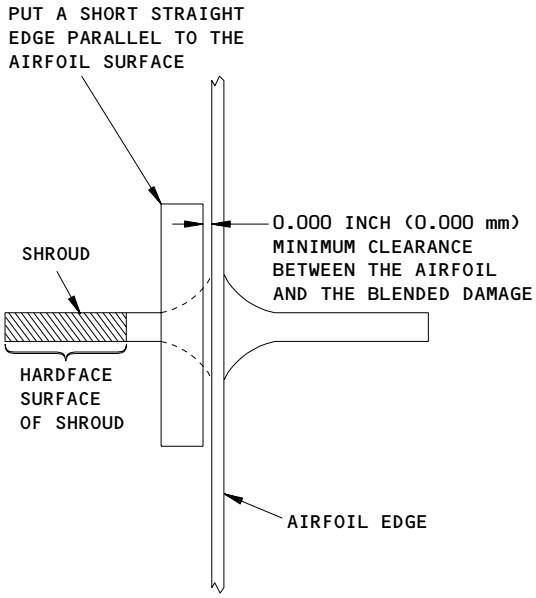
Names of the Fan Blade Shroud Areas
Figure 603



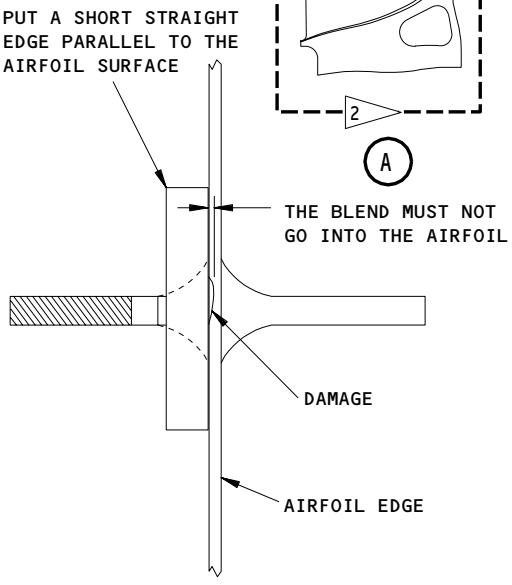




A–A



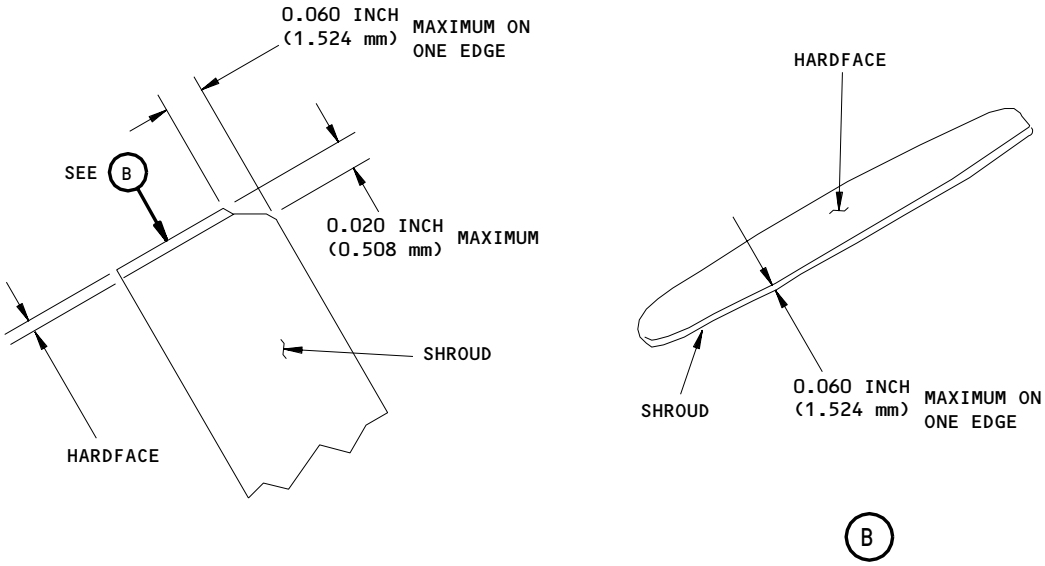
CONDITION PERMITTED
(BOTH SIDES)
B–B



CONDITION NOT PERMITTED
(BOTH SIDES)
B–B

1 ENGINE PRE–PHASE III
2 ENGINES POST–PHASE III

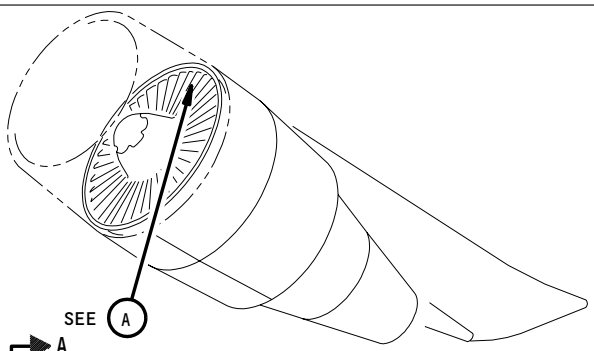
Fan Blade Shroud Damage Limits
Figure 604 (Sheet 1)

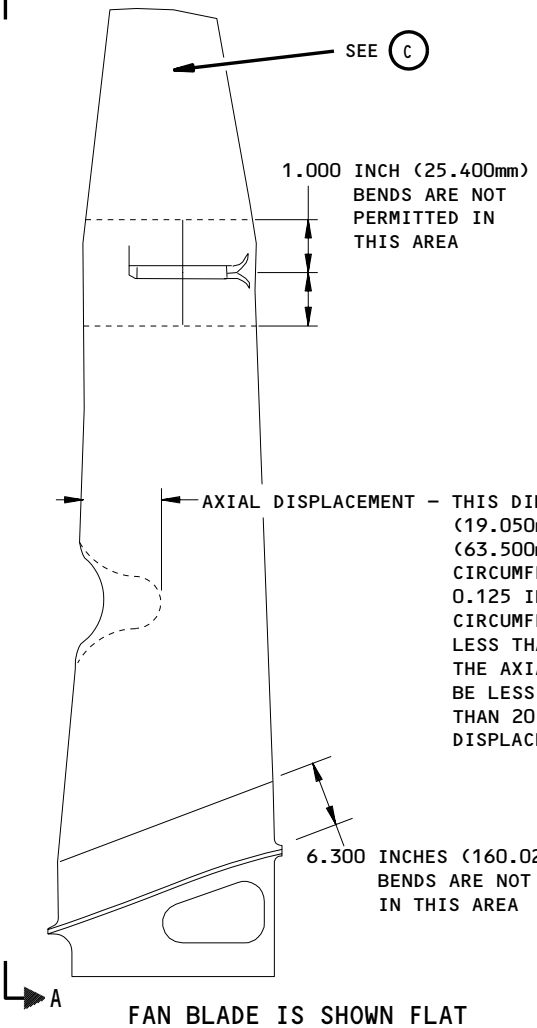


CONDITIONS PERMITTED
(ONE EDGE AND ONE SIDE
OF THE SHROUD ONLY)
C-C

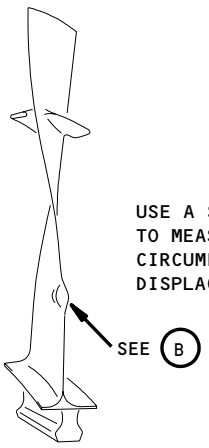
L-B2611 (0000)
PWV

Fan Blade Shroud Damage Limits
Figure 604 (Sheet 2)

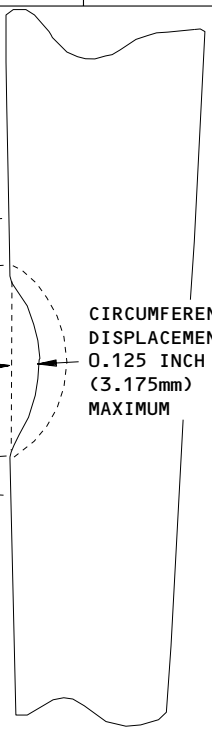




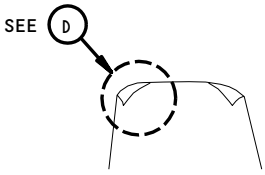
FAN BLADE IS SHOWN FLAT
(THE DIMENSIONS ARE NOT SHOWN TO SCALE)



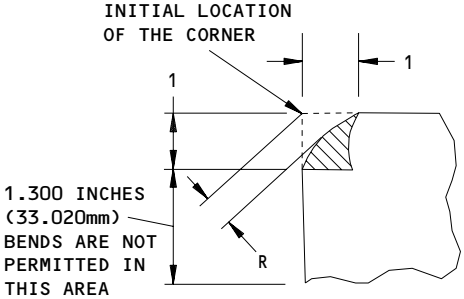
A–A



FRONT VIEW
B



TIP CURL
C

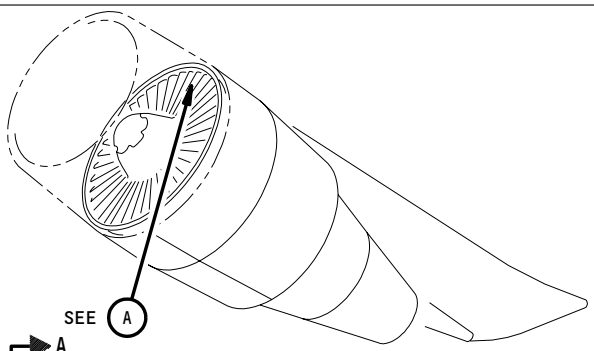


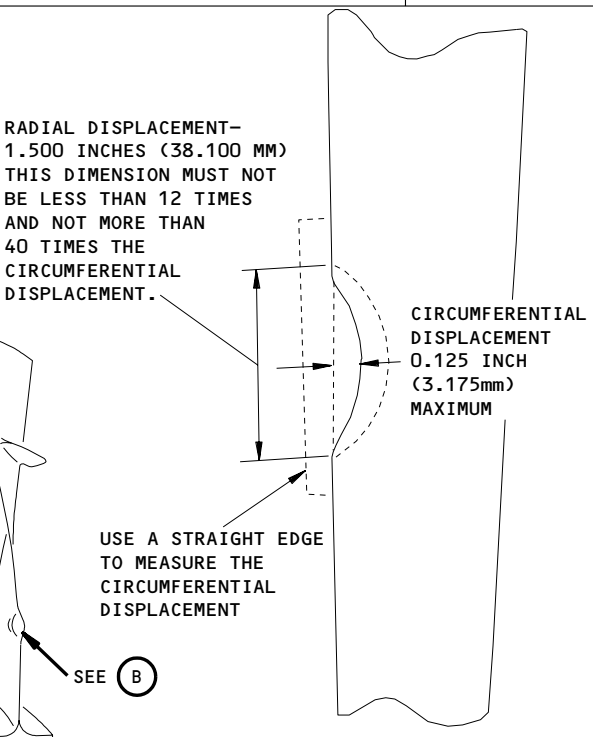
(2 LOCATIONS POSSIBLE)
D

A 1

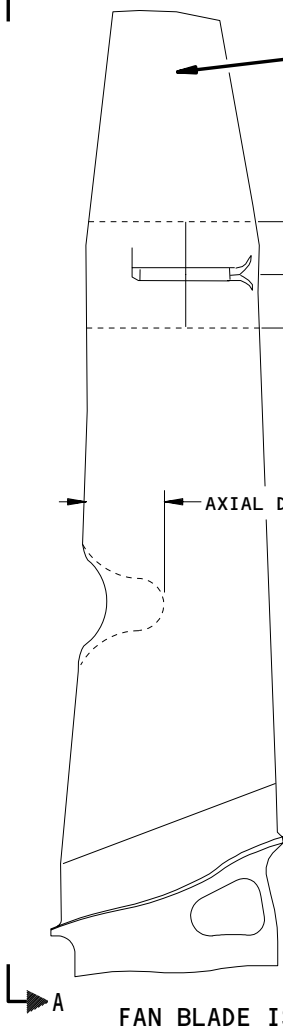
1 ENGINES PRE-PHASE III

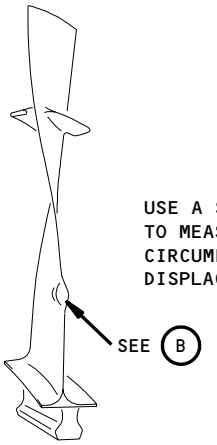
1st-Stage Blade Airfoil Bend and Curl Limits
Figure 605 (Sheet 1)



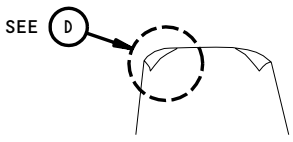


FRONT VIEW
B



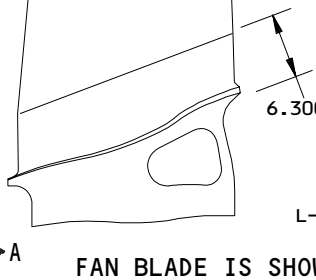


A–A

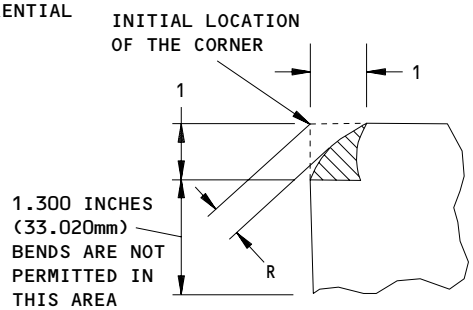


TIP CURL
C

AXIAL DISPLACEMENT – THIS DIMENSION MUST BE 0.750 INCH (19.050mm) MINIMUM TO 2.500 INCHES (63.500mm) MAXIMUM WHEN THE CIRCUMFERENTIAL DISPLACEMENT IS 0.125 INCH (3.175mm). IF THE CIRCUMFERENTIAL DISPLACEMENT IS LESS THAN 0.125 INCH (3.175mm), THE AXIAL DISPLACEMENT MUST NOT BE LESS THAN 6 TIMES AND NOT MORE THAN 20 TIMES THE CIRCUMFERENTIAL DISPLACEMENT.



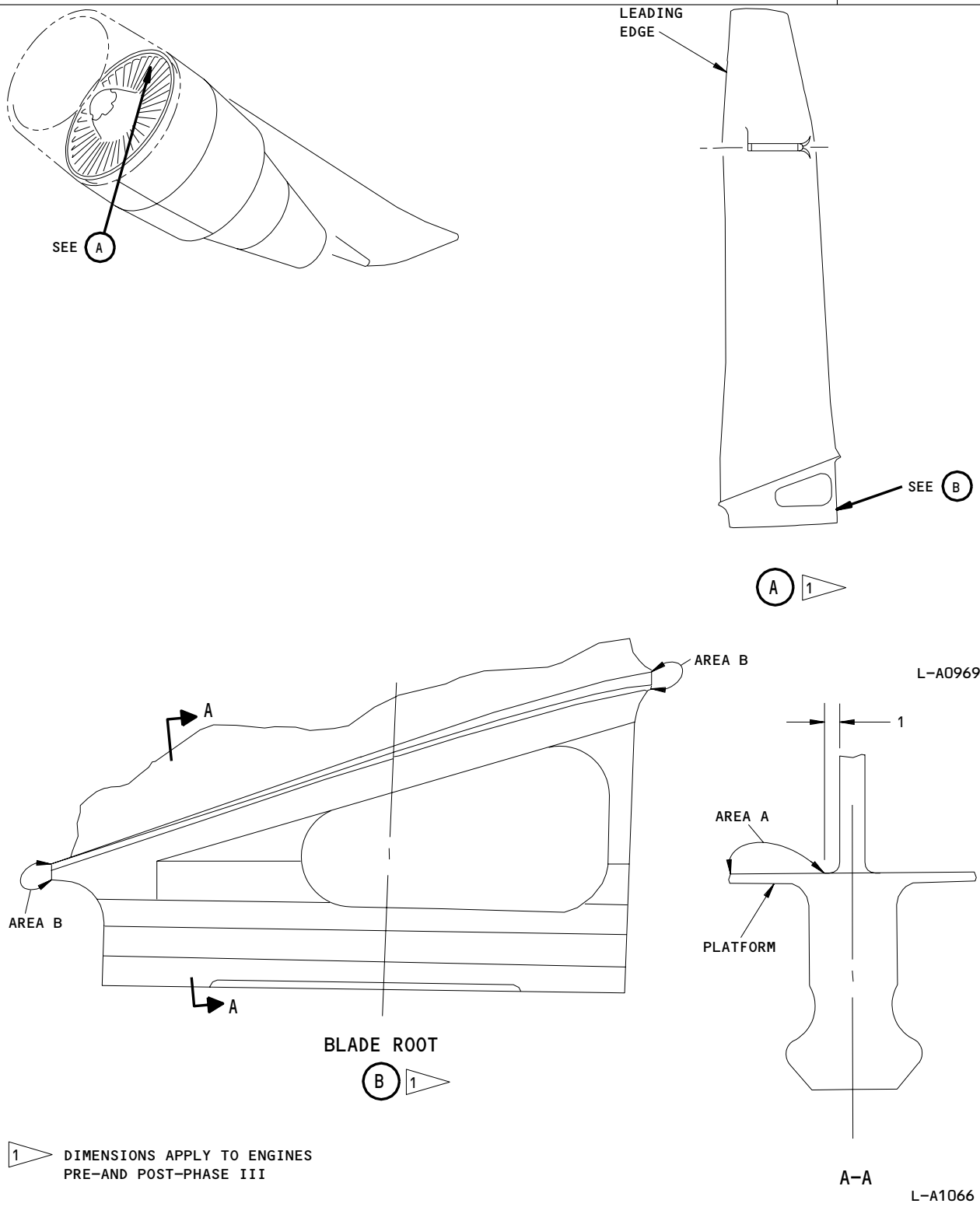
FAN BLADE IS SHOWN FLAT
(THE DIMENSIONS ARE NOT SHOWN TO SCALE)
B 2



(2 LOCATIONS POSSIBLE)
D

2 ENGINES POST–PHASE III

1st–Stage Blade Airfoil Bend and Curl Limits
Figure 605 (Sheet 2)



1st-Stage Blade Platform Inspection Limits
Figure 606

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-401-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		00500 HRS	10101	016	DEC 22/08

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 2 FAN ROTOR BLADES		ALL	4000

ZONES	ACCESS PANELS
421	

MECH | INSP

MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 FAN ROTOR BLADES. N72-31-02-6A

1. 1st-Stage Fan Blade Airfoil Inspection of Surface Damage and Cracks (Fig. 601)

A. General

(1) This inspection is done when it is necessary for a detailed inspection during a regular engine inspection check, such as made necessary by the Maintenance Review Board, or when you think there is foreign object damage.

B. Equipment

(1) Protective mat - Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).

(2) Light source

(3) Mirror

(4) Gloves or a lint free cloth

C. Access

(1) Location Zones
411 Left Engine
422 Right Engine

D. Examine the Fan Blade Airfoil for Surface Damage and Cracks (Fig. 602).

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

MECH | INSP

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU HANDLE THE BLADES.

CAUTION: USE CAUTION WITH ANY ELECTRICAL EQUIPMENT USED NEAR THE BLADES. IF ANY ELECTRICAL SOURCE TOUCHES THE BLADE, CURRENT MAY PASS THROUGH TO THE BLADE AND CAUSE AN ARC BURN. THIS COULD RESULT IN A DECREASE IN THE MATERIAL STRENGTH OF THE BLADE. THIS COULD ALSO CAUSE CRACKS TO APPEAR IN THE BLADE.

(3) Use the equipment as follows to help find damage.

(a) Use a strong light and mirror.

(b) Lightly rub the blade edge with gloves or a cloth (Which will catch on lifted material) to help find damage.

(c) Use your fingernails and fingertips to help find the size and condition of the damage.

EXAMPLE: Your fingernails can help you find if the damage has a sharp or rounded bottom.

(4) Examine the tip (Area A) of the blade.

(a) Examine the tip for tears, which are not permitted.

(b) Examine the tip for nicks, dents and other damage.

(c) Blade tip color change (for example, a light blue color) is permitted.

MECH | INSP

CAUTION: VERY CAREFULLY EXAMINE ALL DAMAGE TO THE LEADING AND TRAILING EDGES THAT IS IN THE AREA BETWEEN THE PART SPAN SHROUD AND THE PLATFORM. NICKS IN THE LEADING AND TRAILING EDGE BECOME MORE IMPORTANT THE CLOSER THEY ARE TO THE ROOT OF THE BLADE.

(5) Examine the leading and trailing edges and airfoil surfaces for nicks, dents and other damage.

(a) Examine the leading and trailing edges and airfoil surfaces for local damage such as lifted edges or compressed material.

(b) You must repair areas of lifted edges and compressed material which have small radii or rough edges (AMM 72-31-02/801).

NOTE: Use your fingernail to help identify a local, sharp nick or dent.

(c) It is permitted for blades with erosion to continue in service.

NOTE: Erosion is where a layer of the surface is gone. Signs of erosion are many, very small dents that feel like sand paper. Erosion limits are given at shop overhaul.

(d) Do not blend blades that have damage which is more than the limits in Table 601.

1) Keep the fan blades that were removed for possible subsequent repair, as specified by an approved repair source.

Table 601
Airfoil Damage Limits

EXAMINE THESE AIRFOIL AREAS	MAXIMUM DEPTH OF DAMAGE ON THE AIRFOIL		
	PERMITTED WITHOUT REPAIRS	PERMITTED AFTER REPAIRS	PERMITTED FOR 50 HOURS OF SERVICE AFTER REPAIRS
Area A The Tip	0.020 inch (0.508 mm)	0.750 inch (19.050 mm)	1.000 inch (25.400 mm)
Area B Shroud to Airfoil Radius	No Damage is Permitted	No Damage is Permitted	No Damage is Permitted
Area C Leading and Trailing Edges	0.005 inch (0.127 mm)	0.250 inch (6.350 mm)	0.300 inch (7.629 mm)
Area D Platform to Airfoil Radius	No Damage is Permitted	No Damage is Permitted	No Damage is Permitted
Leading and Trailing Edges	0.005 inch (0.127 mm)	0.150 inch (3.810 mm)	None (See Permitted After Repairs)
Area E Other Surfaces	0.020 inch (0.508 mm)	0.030 inch (0.762 mm)	0.060 inch (1.524 mm)
Area F Other Surfaces	0.005 inch (0.127 mm)	0.250 inch (6.350 mm) See *[1]	0.300 inch (7.629 mm) See *[1]

*[1] This limit may be found to be 0.500 inch (12.7 mm) maximum in the CRI Manual. The higher limit is allowed for necessary bead peen and ECI at overhaul facility.

(6) Examine the airfoil for arc burn.

NOTE: Signs of arc burn are small circular or semicircular heat damaged areas on the blade surface that can have very small rounded dents, cracks, burned or melted areas.

MECH | INSP

(a) Arc burn is not permitted.

(7) Examine the airfoil for cracks.

(a) You must repair all cracks (AMM 72-31-02/801).

(8) If you are done with the fan blade inspections, do the steps that follow:

(a) Remove the protective mat from the inlet cowl.

(b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.

2. 1st-Stage Fan Blade Part Span Shroud Inspection for Damage (Fig. 603)

A. General

(1) The part span shrouds will be called the shrouds in this task.

(2) This inspection is done when it is necessary for a detailed inspection during a regular engine inspection check, such as made necessary by the Maintenance Review Board, or when you think there is foreign object damage.

B. Equipment

(1) Protective mat - Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).

C. Access

(1) Location Zones
411 Left Engine
422 Right Engine

D. Procedure

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

MECH | INSP

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: USE GLOVES ON YOUR HANDS WHEN YOU HANDLE THE BLADES. THE BLADES ARE SHARP AND CAN CAUSE INJURY TO YOUR HANDS.

(3) Loosen all of the 1st-stage fan blades, if necessary, to make sure they are free to move at the shroud face at the 12 o'clock location.

(4) Examine the fan blades for shrouds that are broken, fractured, have cracks, or are not there.

(a) A fan blade with a shroud that is broken, fractured, has cracks, or is not there is not permitted.

(b) If you find a shroud(s) that has cracks do the steps that follow:

1) Examine the shrouds of all the fan blades for cracks.

a) Carefully examine the shroud radius (Area C) that is on the concave side of the airfoil.

NOTE: It is very important to examine the side of Area C that is nearest to the root of the blade.

2) Remove the damaged fan blade(s), the blades that are on each side of it, and the matched moment blade of each removed blade.

NOTE: For each fan blade that has a shroud(s) that has cracks, you must remove six fan blades.

(c) If you find a shroud(s) that is broken (fractured) or not there do the steps that follow:

1) Remove and replace the damaged blade and two adjacent blades along with their three moment weighed pairs. Report the serial numbers of the adjacent blades.

MECH | INSP

2) Lubricate the shrouds and dispatch the aircraft.

3) Obey a 25 hour flyback limit until you do a NDI inspection of all concave shrouds per PW4ENG 72-478.

4) NDI reinspect all concave shrouds per SB PW4ENG 72-478 within 40 cycle.

5) Visually inspect at every 1/2 A-check (lubrication interval).

NOTE: This applies to the pre SB PW4ENG 72-536 fan rotors only. Inspect all phase III and post SB PW4ENG 72-536 fan rotors at every A-check.

6) NDI reinspect at next C-check.

7) NDI reinspect at all overhauls.

8) Notify P&W of any cracked fan blades found reporting:
- Total time
- Total cycles
- Part number and change letter
- Part serial number and heat code
- Engine serial number
- Cycles since last inspection.

(5) Examine Area A (shroud contact edge) for damage.

(a) No damage or blends are permitted in Area A.

(6) Examine Area B (hardface surface of the shroud) for cracks, worn areas or damage on the hardface.

(a) With the rotor stopped and not held, manually push one blade rearward in the blade slot at the 12 o'clock position and pull the adjacent blade forward.

NOTE: You can hit the thick part of the shroud with your hand or with a soft rubber mallet to release the blades.

(b) Examine the shrouds for worn areas on the mating surfaces.

1) If there are areas where the hardface is worn through, do not use the fan blade.

NOTE: If the hardface is worn through, the operation of the engine can distort and peen the titanium shroud.

(c) Erosion, mismatch or coverage that is not complete on the shroud hardface surface is permitted if it meets the conditions below (Fig. 604).

1) A maximimum of 0.060 inch (1.524 mm) is permitted on one edge and on one side of the shroud only.

2) The surface must be well rounded with no sharp edges.

3) The depth must not be more than 0.020 inch (0.508 mm).

(d) Chips in the hardface surface which are larger than 0.060 inch (1.524 mm) are not permitted.

(e) If you think there is a crack, do a fluorescent penetrant inspection.

1) Cracks are not permitted.

(7) Examine Area C (shroud radius) for damage (Fig. 604).

(a) Repair all damage that is not more than the repair limits (AMM 72-31-02/801).

1) The repairs must not go below the airfoil surface.

(b) Sharp edges are not permitted (AMM 72-31-02/801).

(c) If the damage is more than the blend limits, do not use the fan blade.

(8) Examine Area D (fillet radius) for damage (Fig. 603).

(a) Isolated damage with rounded bottoms that is less than 0.005 inch (0.127 mm) in depth is serviceable.

(b) No other damage is permitted.

(9) Examine Area E (shroud upper and lower surfaces) for damage (Fig. 603).

MECH | INSP

(a) No damage is permitted.

(b) You must repair all damage that is less than the repair limits (AMM 72-31-02/801).

1) The maximum depth of a blend is 0.010 inch (0.254 mm).

(c) Fan blades that have shrouds that are broken, have cracks or are not there, are not permitted.

(10) Examine Area F (shroud edges) for damage (Fig. 603).

(a) No damage is permitted.

(b) You must repair all damage that is less than the repair limits (AMM 72-31-02/801).

1) The maximum blend depth is 0.060 inch (1.524 mm).

(11) Turn the rotor to put the adjacent two blades at the 12 o'clock position.

(12) Do this inspection procedure again until you examine all the fan blades.

(13) If you are done with the fan blade inspections, do the steps that follow:

(a) Remove the protective mat from the inlet cowl.

(b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.

3. 1st-Stage Fan Blade Airfoil Inspection for Bends and Curl (Fig. 605)

A. General

(1) This inspection is done when you think there is foreign object damage (FOD).

B. Equipment

(1) Protective mat - Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).

MECH | INSP

C. Access

(1) Location Zones
411 Left Engine
422 Right Engine

D. Procedure (Fig. 605)

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU HANDLE THE BLADES.

(3) Examine the tip of the blade for bends and curl.

NOTE: A curl is a small bend.

(a) Tip curl is permitted as follows:

1) Index 1 must not be more than 0.200 inch (5.080 mm).

2) No more than three adjacent blades with tip curl are permitted.

3) No more than a total of five blades with tip curl are permitted.

4) Tip curl with cracks or tears is not permitted.

(b) A blade with the conditions that follow can continue in service without repair for 50 hours.

1) Index 1 must not be more than 2.000 inches (50.800 mm).

2) Index R must not be more than 0.500 inch (12.700 mm).

MECH | INSP

(4) Examine the leading and trailing edges for bends.

(5) If the bends are more than the limits, remove the fan blade and keep it for a possible subsequent repair.

(6) If you are done with the fan blade inspections, do the steps that follow:

(a) Remove the protective mat from the inlet cowl.

(b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.

4. 1st-Stage Fan Blade Platform Inspection for Damage (Fig. 606)

A. General

(1) This inspection is done when you think there is foreign object damage (FOD).

B. Equipment

(1) Protective mat - Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).

C. Access

(1) Location Zones
411 Left Engine
422 Right Engine

D. Procedure

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: TO PREVENT INJURY TO YOUR HANDS, GLOVES SHOULD BE WORN WHEN YOU HANDLE THE BLADES.

(3) Examine the platform surfaces for nicks, dents, and scratches (Fig. 606, and Table 602).

(a) Use 10X magnification.

(b) Repair the blades that have damage (AMM 72-31-02/801).

TABLE 602
PLATFORM INSPECTION LIMITS

EXAMINE THESE AREAS	MAXIMUM DEPTH OF DAMAGE ON THE PLATFORM	
	PERMITTED WITHOUT REPAIRS	PERMITTED IF REPAIRED
Dimension 1 (For Reference)	0.300 Inch (7.620 mm) minimum	
Area A Platform Surface	0.005 Inch (0.127 mm)	0.020 inch (0.508 mm)
Area B Root Face	0.005 Inch (0.127 mm)	0.040 inch (1.016 mm)

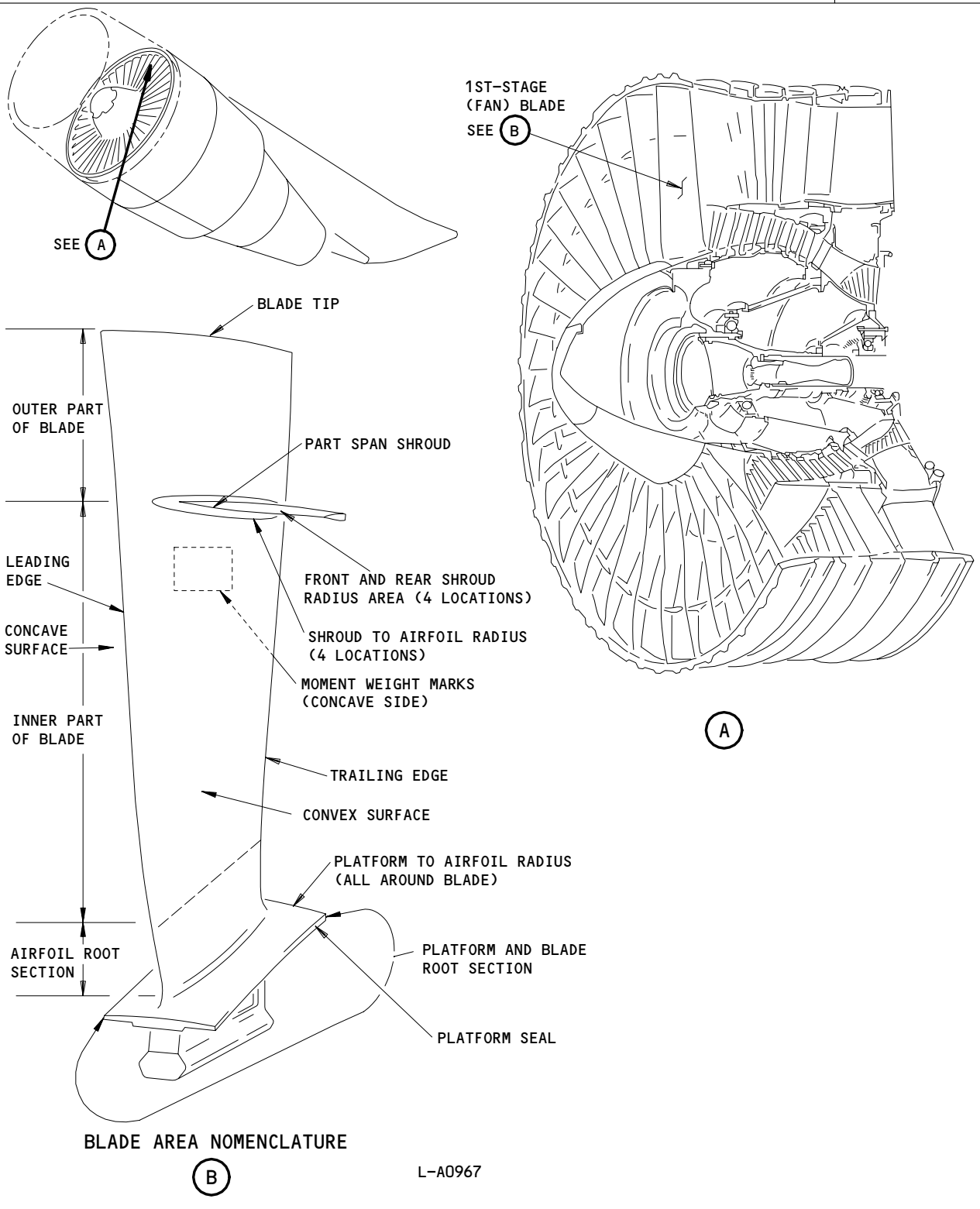
(4) Examine the platform for cracks.

(a) Remove fan blades that have cracks in the platform, because cracks are not permitted in the platform and you cannot repair cracks.

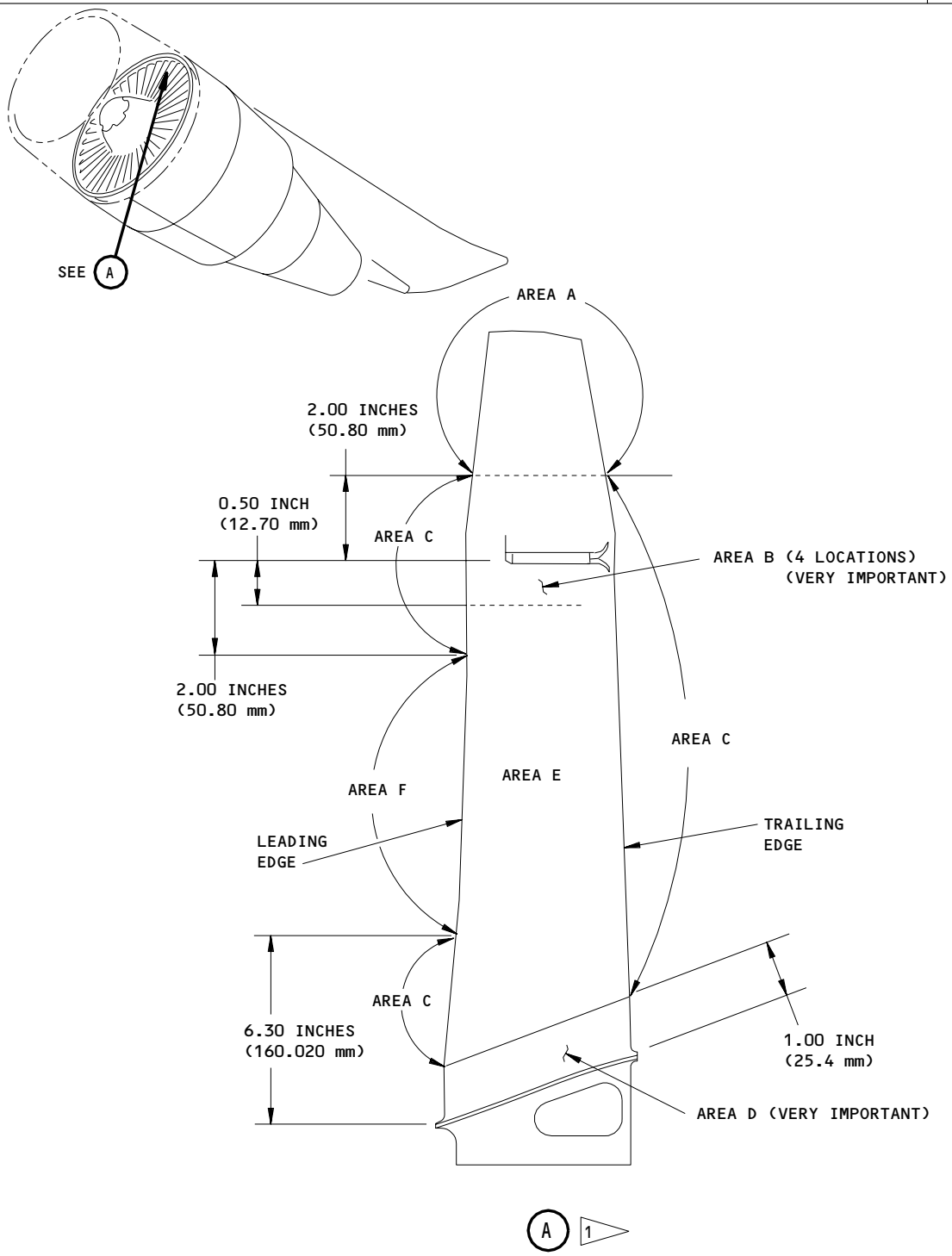
(5) If you are done with the fan blade inspections, do the steps that follow:

(a) Remove the protective mat from the inlet cowl.

(b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.



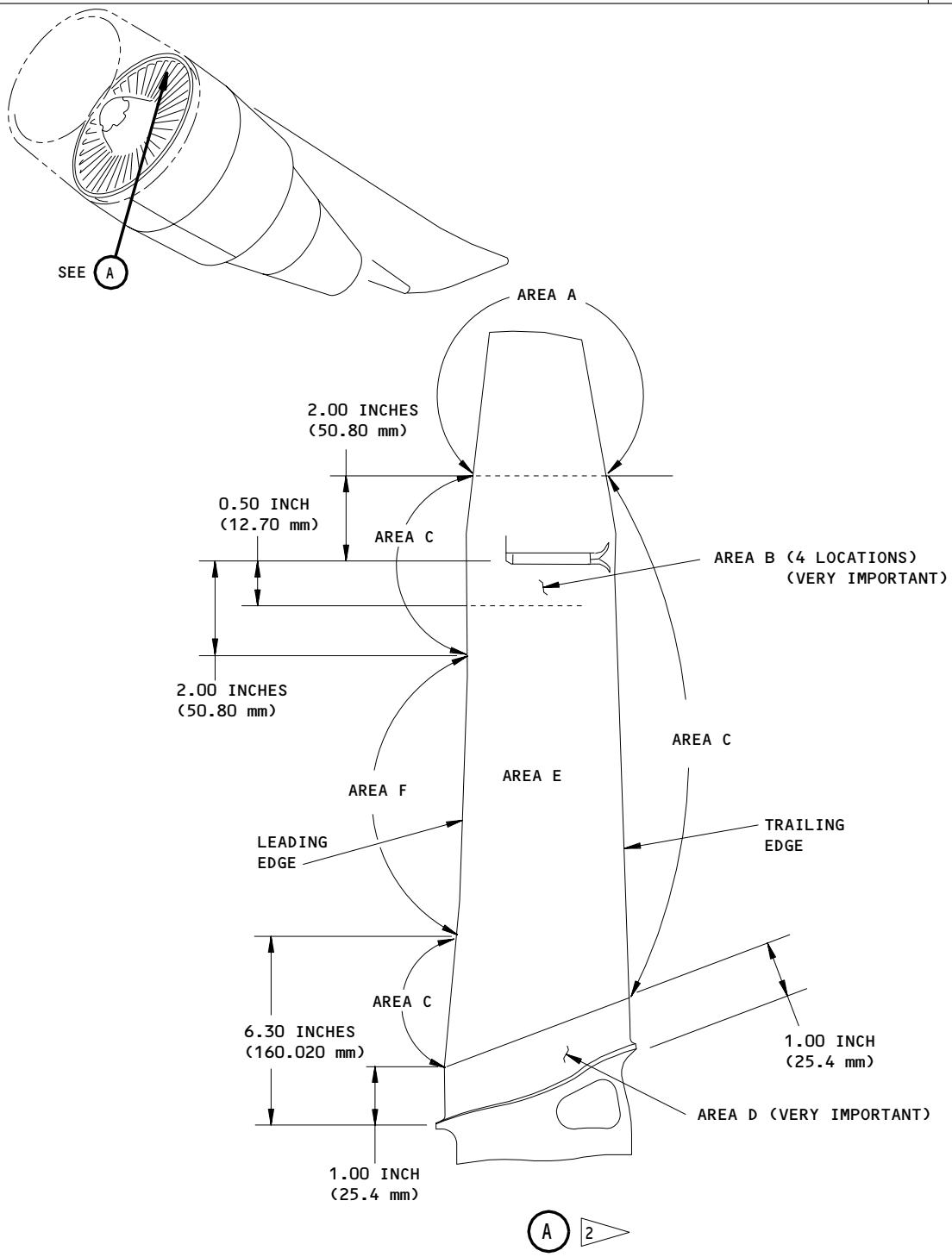
Name of 1st-Stage Blade Areas
Figure 601



1 ENGINES PRE-PHASE III

L-A8821 (0896)

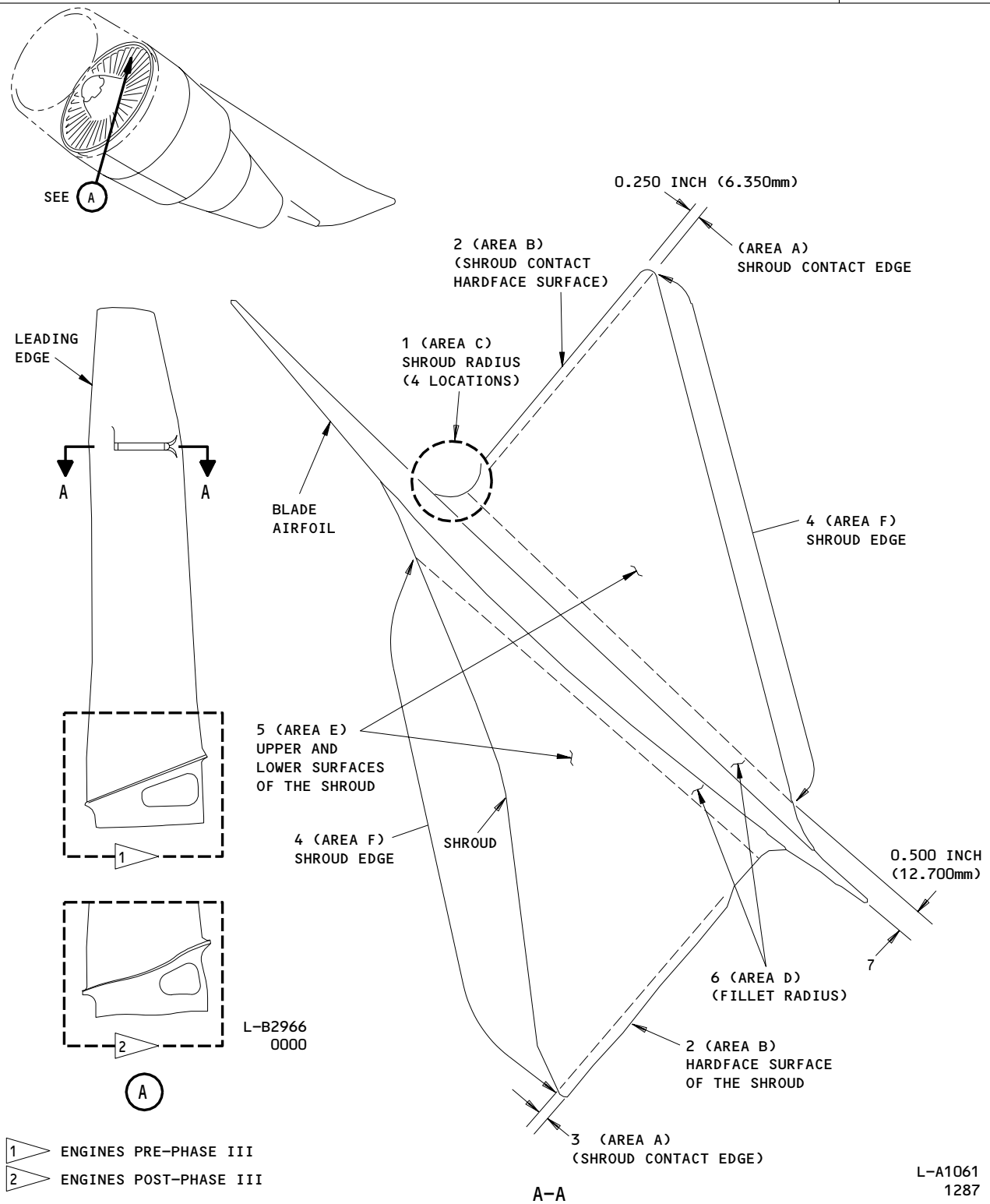
1st-Stage Fan Blade Damage Limits
Figure 602 (Sheet 1)



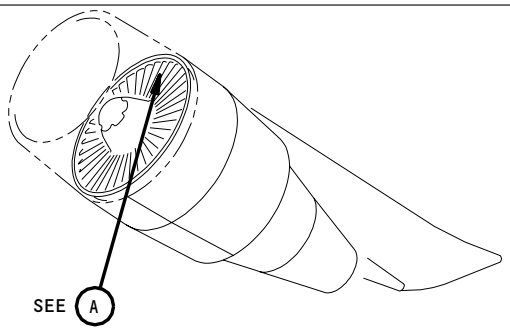
2 ENGINES POST-PHASE III

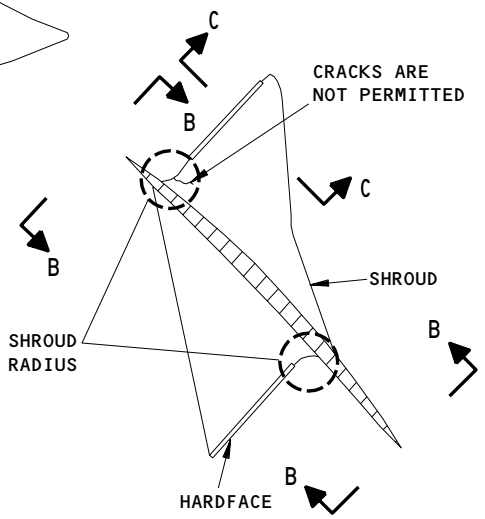
L-A8821 (0896)

1st-Stage Fan Blade Damage Limits
Figure 602 (Sheet 2)



Names of the Fan Blade Shroud Areas
Figure 603





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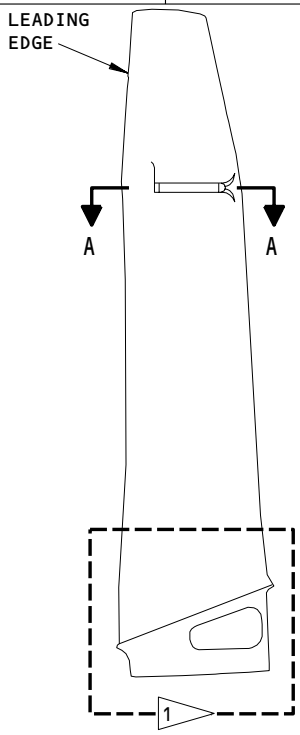
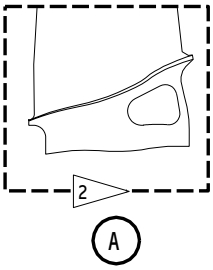
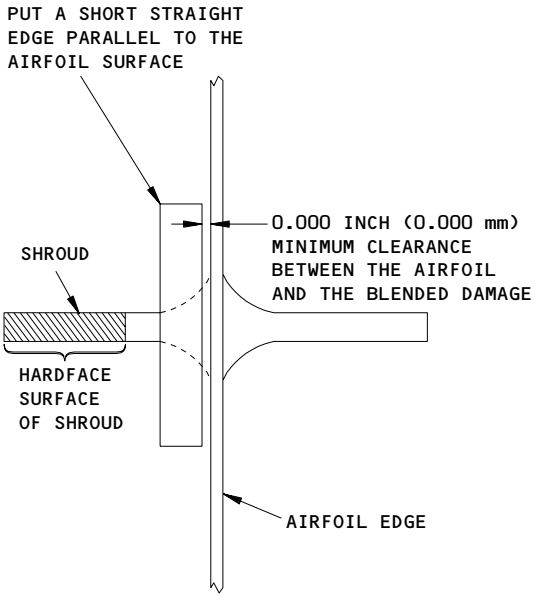
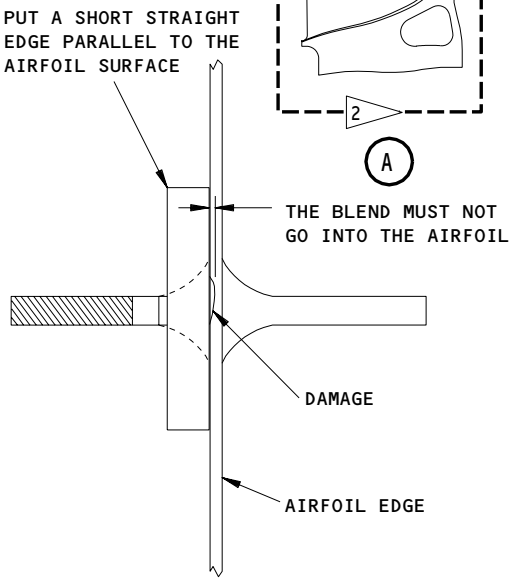






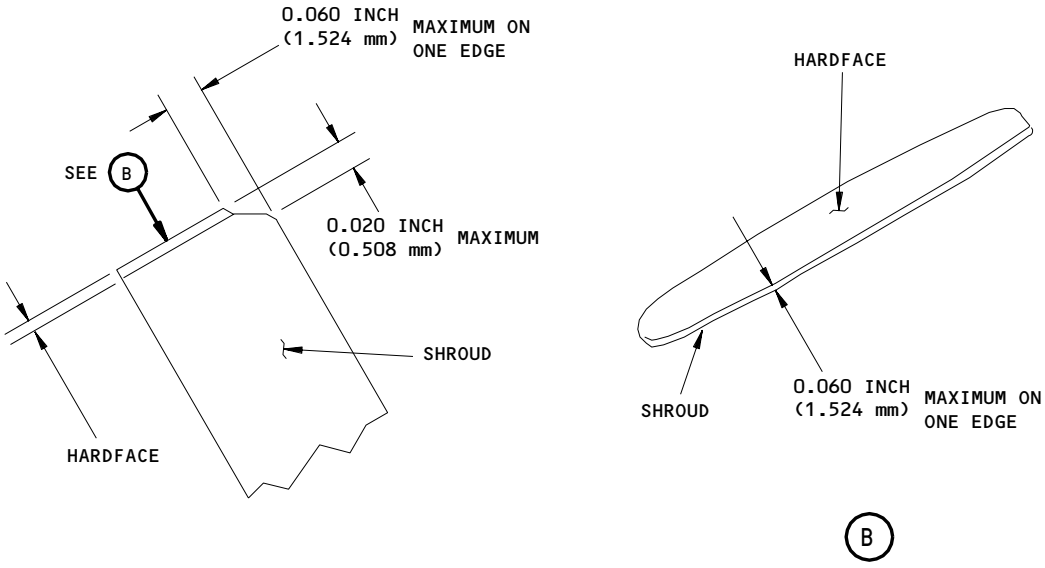
CONDITION PERMITTED
(BOTH SIDES)
B–B



CONDITION NOT PERMITTED
(BOTH SIDES)
B–B

1 ENGINE PRE–PHASE III
2 ENGINES POST–PHASE III

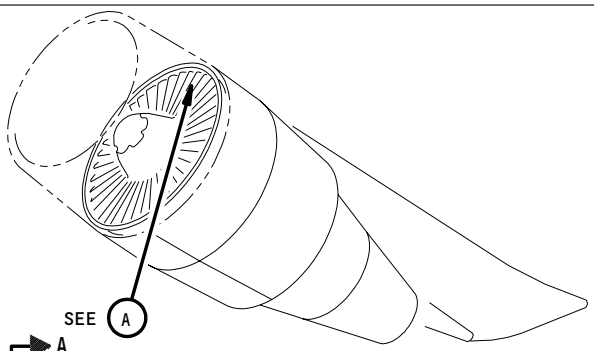
Fan Blade Shroud Damage Limits
Figure 604 (Sheet 1)

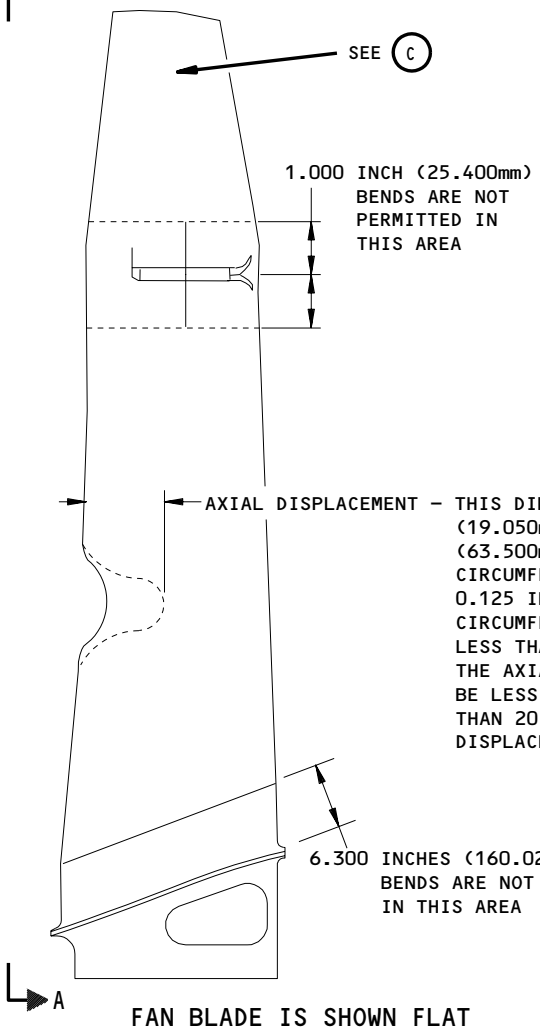


CONDITIONS PERMITTED
(ONE EDGE AND ONE SIDE
OF THE SHROUD ONLY)
C-C

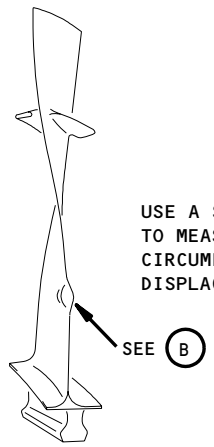
L-B2611 (0000)
PWV

Fan Blade Shroud Damage Limits
Figure 604 (Sheet 2)





FAN BLADE IS SHOWN FLAT
(THE DIMENSIONS ARE NOT SHOWN TO SCALE)



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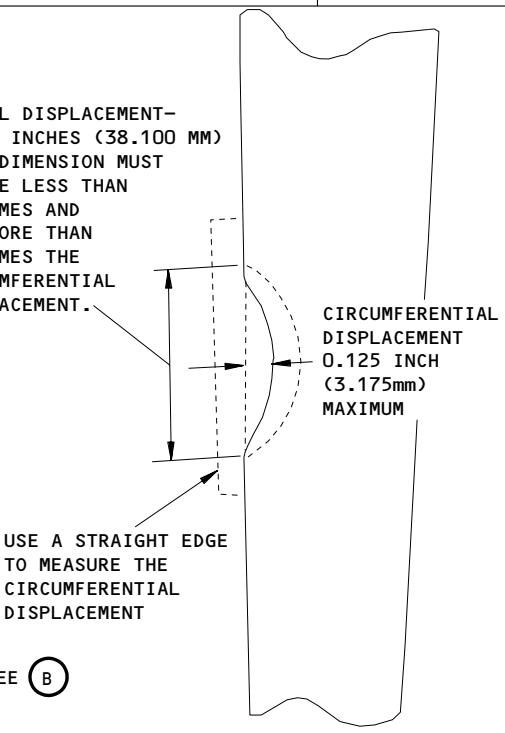
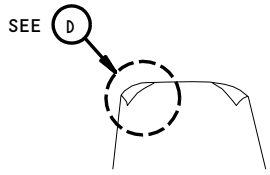
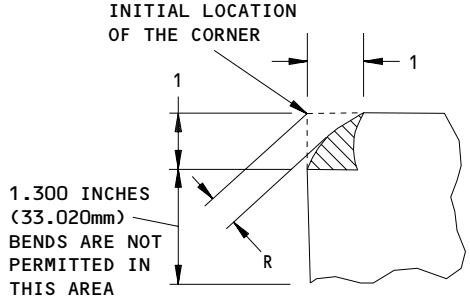


FRONT VIEW
B



TIP CURL
C

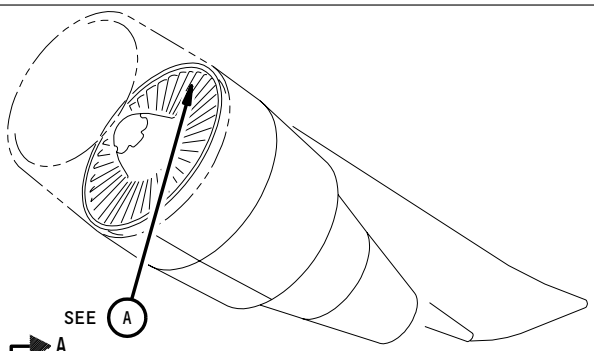


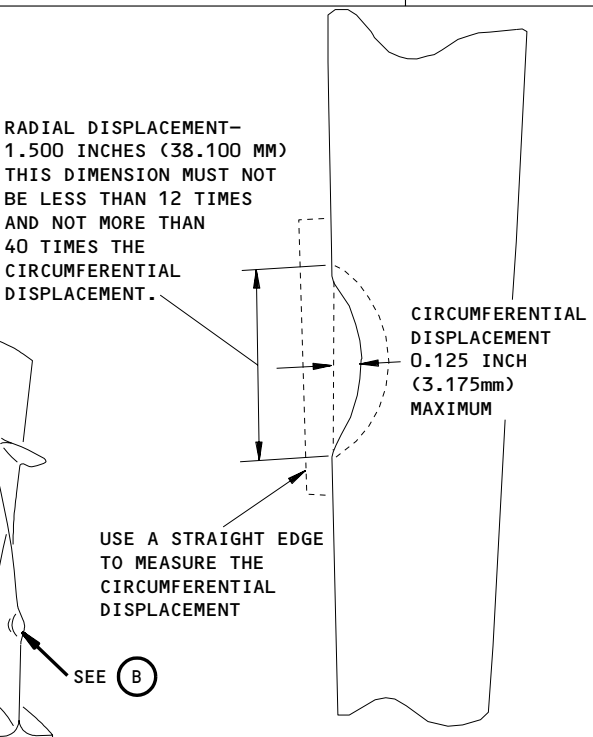
(2 LOCATIONS POSSIBLE)
D

A 1

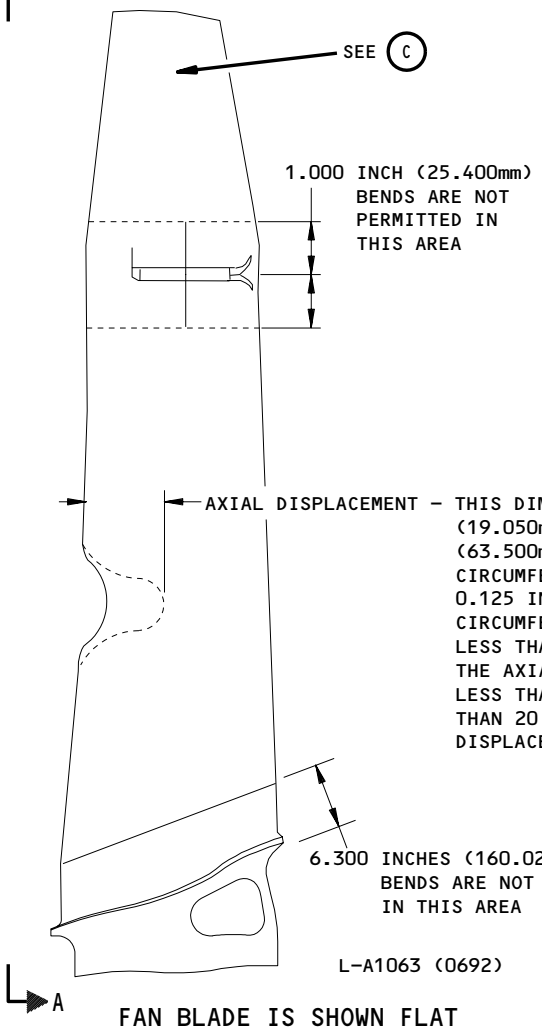
1 ENGINES PRE-PHASE III

1st-Stage Blade Airfoil Bend and Curl Limits
Figure 605 (Sheet 1)

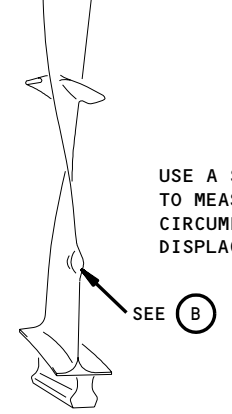




FRONT VIEW
B



FAN BLADE IS SHOWN FLAT
(THE DIMENSIONS ARE NOT SHOWN TO SCALE)
B 2



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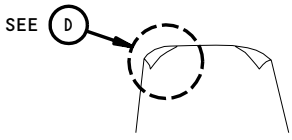
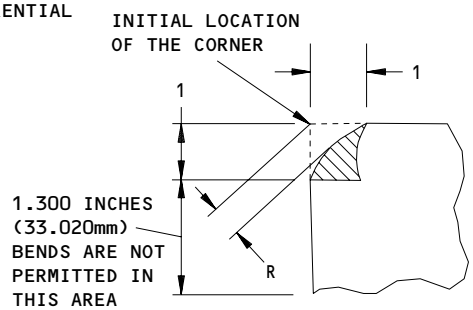


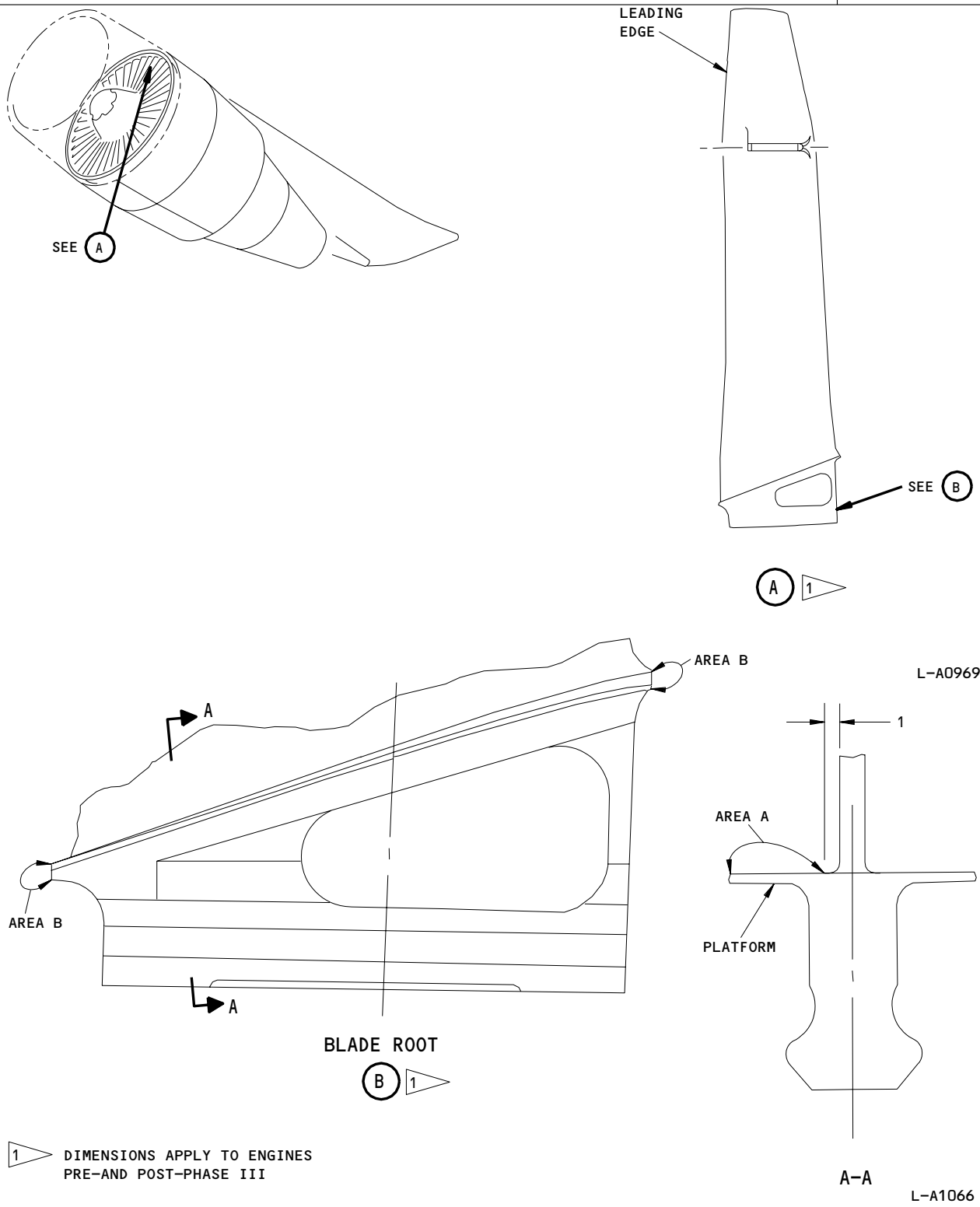
TIP CURL
C



(2 LOCATIONS POSSIBLE)
D

2 ENGINES POST-PHASE III

1st-Stage Blade Airfoil Bend and Curl Limits
Figure 605 (Sheet 2)



1st-Stage Blade Platform Inspection Limits
Figure 606

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-402-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		00500 HRS	10101	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	EXTERNAL PORTION OF INLET CONE		ALL	4000

ZONES	ACCESS PANELS
411	

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE EXTERNAL SURFACES OF THE ENGINE 1 INLET CONE FOR CONDITION. N72-31-01-6A

1. Inlet Cone-Inspection/Check

A. Equipment

(1) Protective mat - Rubber Manufactures Association, Grade SC43 Neoprene Sponge 1 in. thick, approximately 5x6 ft with warning streamer attached (3 required)

B. Consumable Materials

(1) G01077, Emery paper (Aluminum oxide) 200-325 Grit - PWA P05-055

C. References

(1) AMM 72-31-01/401, Inlet Cone

D. Inspect The Inlet Cone (Fig. 601)

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch on the P5 overhead panel.

CAUTION: USE A PROTECTIVE MAT WHEN WORKING INSIDE THE INLET OR DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET CONE.

MECH | INSP

(2) Position the protective mat in the lower ID of the inlet cone.

NOTE: Length to depth (L/D) ratio is equal to five noted differently. Limits apply to damaged area after blending and not to quantity of damage measured before blending.

(3) Inspect the inlet cone for chipping, cracks and delamination caused by damage from a bird, ice, or other object.

(a) Inspect the exterior surface of the inlet cone. Look for any signs of chipping, cracks and delamination which are caused by foriegn object damage (FOD).

(b) Inspect the interior surface of the inlet cone for any visible signs of cracking or delamination. Impact damage to the outer surface of the cone segment which causes visible cracking or delamination of the inner surface indicates major structural damage. In this case, the cone segment must be removed from service (AMM 72-31-01/401).

NOTE: Inlet cones which have been subjected to damage which was caused by a bird, ice or by the use of impact tool are very susceptible to this type of damage.

(4) Remove the protective mat from the inlet cowl.

(5) The checks that follow are the Continue-In-Service Limits.

(a) The visual limits of the external cone surface FOD are as follows:

1) Minor paint chipping, dents or scratches which do not cause crazing with a primary path to inside surface of cone are permitted without restriction.

2) After the initial inspection, if any indication of cracks on any surface location are found, and these cracks go through the composite material, remove the part.

a) The maximum crack length is 12.0 in. (304.8 mm) for each crack.

b) A maximum of 10 cracks are permitted for each inlet cone.

c) The cracks must be in the resin rich areas and must not go into the composite material. Find the correct crack depth by lightly sanding the surface with Emery Paper (P05-055).

d) The cracks must not cause delamination.

e) The end of the crack must be at least 2.0 in. (50.8 mm) away from the trailing edge.

(b) The visible chipping and delamination limits of the external cone surface are as follows:

1) No delamination or peeling is permitted on composite material surface.

2) FOR ENGINES WITH PN 749629;
Erosion or peeling of the black protective paint on the cone (front) segment is permitted up to 50% of the surface area, but the part must be replaced at the next scheduled maintenance action. If the area of erosion or peeling is more than 50%, the cone (front) segment must be replaced within 50 hours maximum (AMM 72-31-01/401).

3) FOR ENGINES WITH PN 51A681 AND 51A760;
Erosion, peeling ot flaking of the flouroelastomer coating on the cone (front) segment is not permitted except in the bolt pocket corners. Replace the cone (front) segment within 50 hours if there is any erosion, peeling or flaking of the flouroelastomer coating (AMM 72-31-01/401). Repair the flouroelastomer coating in bolt pocket corner if there is any erosion, peeling or flaking (AMM 72-31-01/801).

NOTE: This is a temporary repair and the part must be replaced at the next scheduled maintenance interval.

4) For cone (rear) segment, erosion or peeling of the black protective paint is permitted up to 10% of the surface area, but the part must be replaced at the next scheduled maintenance action. If the area of erosion or peeling is more than 10% of the surface area the cone (rear) segment must be replaced within 50 hours (AMM 72-31-01/401).

(c) The visable crack limits of the internal flange area are as follows.

MECH | INSP

1) Minor chipping, dents, scratches or discontinuous crazing at resin rich areas in front flange or minor discontinuous crazing in resin rich areas at rear flange are permitted without restriction.

NOTE: The front and rear flange cannot be easily seen. Therefore, if inlet cone is thought to have damage, the front segment must be removed and the inside of the inlet cone inspected.

(6) Inlet cone rear segment seal damage limits are as follows:

(a) Remove any portion of the seal that is loose, hanging into, or protruding into the gaspath by trimming as close to the inlet cone external surface as possible.

(b) Any amount of seal is permitted to be missing, but the seal must be replaced at the next scheduled maintenance opportunity or at the next C Check.

(7) The checks that follow are the Flyback Limits.

(a) Flyback limits are for a maximum of 50 hours.

(b) The conditions that are permitted only for flyback are:
- Composite material delamination or peeling.
- Paint erosion or peeling.
- Indentations not more than 0.060 in. (1.524 mm) in depth or 1.500 in. (38.100 mm) in diameter.
- Local cracks which after inspection of the inside of the inlet cone are not longer than 0.500 in. (12.700 mm) are permitted for flyback limit only.

1) Any through cracks, indentations or surface ply peeling which is more than the flyback limits requires that the part, assembly, or engine be removed.

NOTE: The front segment of the inlet cone can be used if the through cracks are evident as long as it is secured to the rear segment.

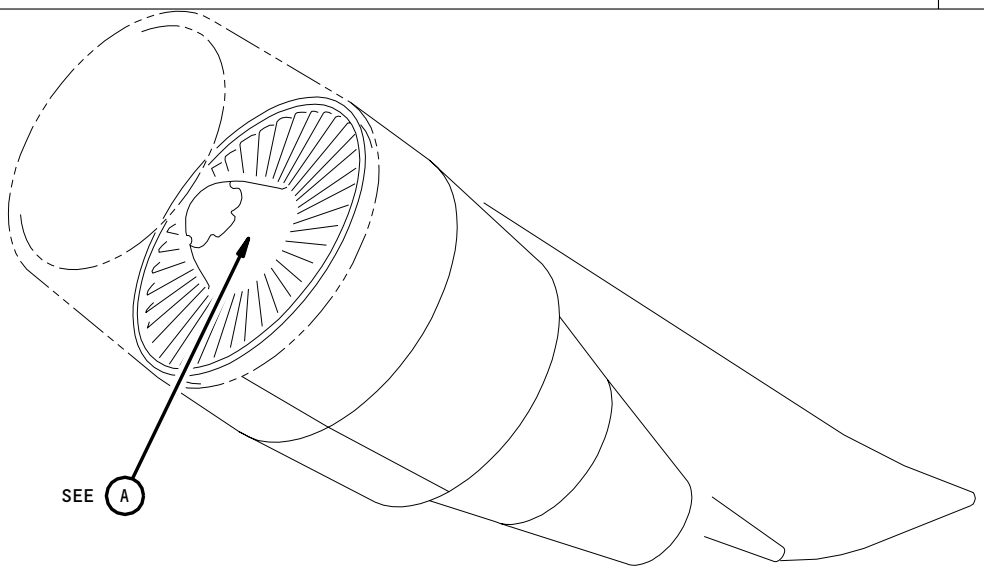
2) Crazing with a primary path (indicating a crack) which does not exceed 0.500 in. (12.700 mm) in length is permitted.

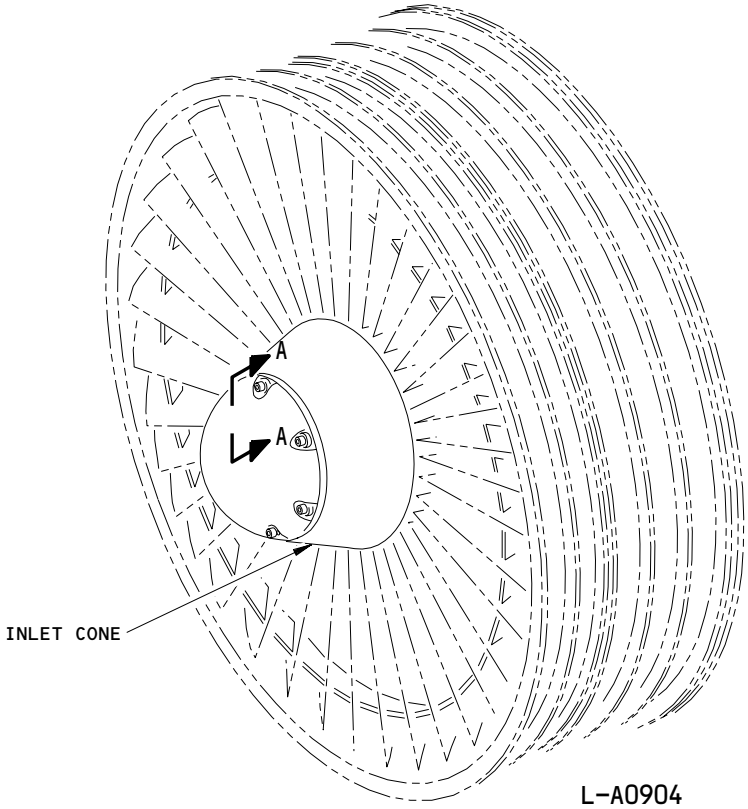
MECH	INSP

3) Any crack that ends less than 2.0 in. (50.0 mm) away from the traling edge is permitted for the flybacklimit only.

4) If any damage occurs which is more than the flyback limit, the part must be removed (AMM 72-31-01/401).

(8) Remove the DO-NOT-OPERATE tags from the ENG START switch on P5 overhead panel.





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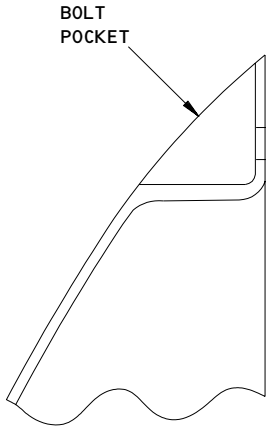


(BOLT REMOVED)
A-A

Inlet Cone Inspection
Figure 601

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-402-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		00500 HRS	10101	006	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	EXTERNAL PORTION OF INLET CONE		ALL	4000

ZONES	ACCESS PANELS
421	

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE EXTERNAL SURFACES OF THE ENGINE 2 INLET CONE FOR CONDITION. N72-31-01-6A

1. Inlet Cone-Inspection/Check

A. Equipment

(1) Protective mat - Rubber Manufactures Association, Grade SC43 Neoprene Sponge 1 in. thick, approximately 5x6 ft with warning streamer attached (3 required)

B. Consumable Materials

(1) G01077, Emery paper (Aluminum oxide) 200-325 Grit - PWA P05-055

C. References

(1) AMM 72-31-01/401, Inlet Cone

D. Inspect The Inlet Cone (Fig. 601)

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch on the P5 overhead panel.

CAUTION: USE A PROTECTIVE MAT WHEN WORKING INSIDE THE INLET OR DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET CONE.

MECH | INSP

(2) Position the protective mat in the lower ID of the inlet cone.

NOTE: Length to depth (L/D) ratio is equal to five noted differently. Limits apply to damaged area after blending and not to quantity of damage measured before blending.

(3) Inspect the inlet cone for chipping, cracks and delamination caused by damage from a bird, ice, or other object.

(a) Inspect the exterior surface of the inlet cone. Look for any signs of chipping, cracks and delamination which are caused by foriegn object damage (FOD).

(b) Inspect the interior surface of the inlet cone for any visible signs of cracking or delamination. Impact damage to the outer surface of the cone segment which causes visible cracking or delamination of the inner surface indicates major structural damage. In this case, the cone segment must be removed from service (AMM 72-31-01/401).

NOTE: Inlet cones which have been subjected to damage which was caused by a bird, ice or by the use of impact tool are very susceptible to this type of damage.

(4) Remove the protective mat from the inlet cowl.

(5) The checks that follow are the Continue-In-Service Limits.

(a) The visual limits of the external cone surface FOD are as follows:

1) Minor paint chipping, dents or scratches which do not cause crazing with a primary path to inside surface of cone are permitted without restriction.

2) After the initial inspection, if any indication of cracks on any surface location are found, and these cracks go through the composite material, remove the part.

a) The maximum crack length is 12.0 in. (304.8 mm) for each crack.

b) A maximum of 10 cracks are permitted for each inlet cone.

MECH | INSP

c) The cracks must be in the resin rich areas and must not go into the composite material. Find the correct crack depth by lightly sanding the surface with Emery Paper (P05-055).

d) The cracks must not cause delamination.

e) The end of the crack must be at least 2.0 in. (50.8 mm) away from the trailing edge.

(b) The visible chipping and delamination limits of the external cone surface are as follows:

1) No delamination or peeling is permitted on composite material surface.

2) FOR ENGINES WITH PN 749629;
Erosion or peeling of the black protective paint on the cone (front) segment is permitted up to 50% of the surface area, but the part must be replaced at the next scheduled maintenance action. If the area of erosion or peeling is more than 50%, the cone (front) segment must be replaced within 50 hours maximum (AMM 72-31-01/401).

3) FOR ENGINES WITH PN 51A681 AND 51A760;
Erosion, peeling ot flaking of the flouroelastomer coating on the cone (front) segment is not permitted except in the bolt pocket corners. Replace the cone (front) segment within 50 hours if there is any erosion, peeling or flaking of the flouroelastomer coating (AMM 72-31-01/401). Repair the flouroelastomer coating in bolt pocket corner if there is any erosion, peeling or flaking (AMM 72-31-01/801).

NOTE: This is a temporary repair and the part must be replaced at the next scheduled maintenance interval.

4) For cone (rear) segment, erosion or peeling of the black protective paint is permitted up to 10% of the surface area, but the part must be replaced at the next scheduled maintenance action. If the area of erosion or peeling is more than 10% of the surface area the cone (rear) segment must be replaced within 50 hours (AMM 72-31-01/401).

(c) The visable crack limits of the internal flange area are as follows.

1) Minor chipping, dents, scratches or discontinuous crazing at resin rich areas in front flange or minor discontinuous crazing in resin rich areas at rear flange are permitted without restriction.

NOTE: The front and rear flange cannot be easily seen. Therefore, if inlet cone is thought to have damage, the front segment must be removed and the inside of the inlet cone inspected.

(6) Inlet cone rear segment seal damage limits are as follows:

(a) Remove any portion of the seal that is loose, hanging into, or protruding into the gaspath by trimming as close to the inlet cone external surface as possible.

(b) Any amount of seal is permitted to be missing, but the seal must be replaced at the next scheduled maintenance opportunity or at the next C Check.

(7) The checks that follow are the Flyback Limits.

(a) Flyback limits are for a maximum of 50 hours.

(b) The conditions that are permitted only for flyback are:
- Composite material delamination or peeling.
- Paint erosion or peeling.
- Indentations not more than 0.060 in. (1.524 mm) in depth or 1.500 in. (38.100 mm) in diameter.
- Local cracks which after inspection of the inside of the inlet cone are not longer than 0.500 in. (12.700 mm) are permitted for flyback limit only.

1) Any through cracks, indentations or surface ply peeling which is more than the flyback limits requires that the part, assembly, or engine be removed.

NOTE: The front segment of the inlet cone can be used if the through cracks are evident as long as it is secured to the rear segment.

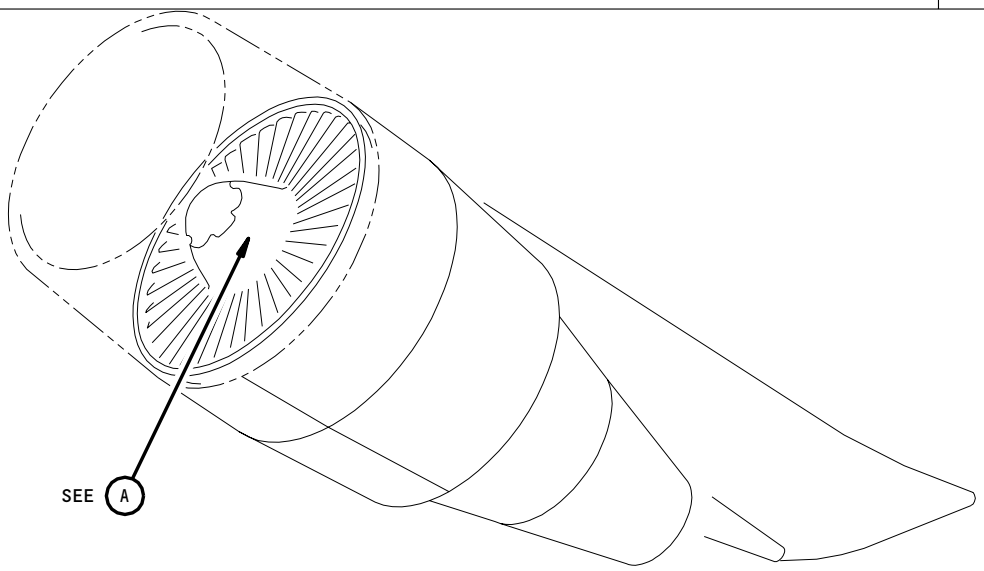
2) Crazing with a primary path (indicating a crack) which does not exceed 0.500 in. (12.700 mm) in length is permitted.

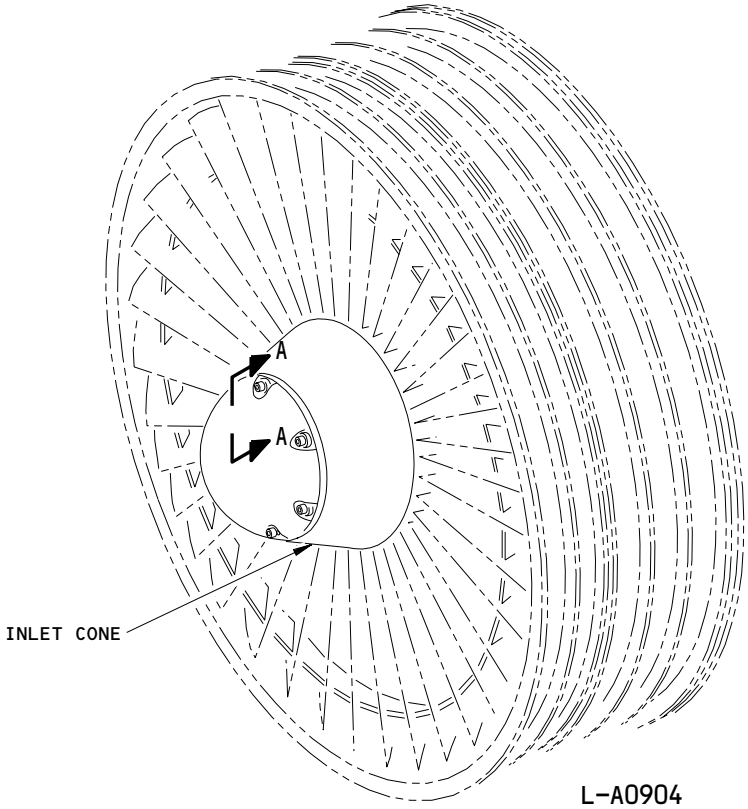
MECH	INSP

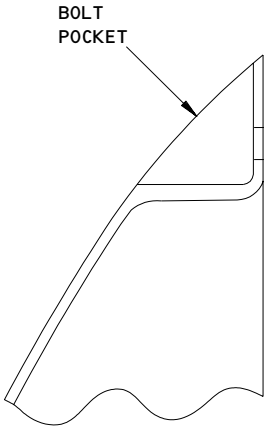
3) Any crack that ends less than 2.0 in. (50.0 mm) away from the traling edge is permitted for the flybacklimit only.

4) If any damage occurs which is more than the flyback limit, the part must be removed (AMM 72-31-01/401).

(8) Remove the DO-NOT-OPERATE tags from the ENG START switch on P5 overhead panel.







(BOLT REMOVED)
A-A

Inlet Cone Inspection
Figure 601

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-403
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
SHOPS			LIFE LMT NOTE	99XXX	005	AUG 22/99

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
REPLACE	FAN HUB		ALL	4000

ZONES	ACCESS PANELS
411 421	

MECH	INSP	MPD ITEM NUMBER

DISCARD THE FAN HUB. N72-30-00-A
INTERVAL NOTE: AT MANUFACTURER'S LIFE LIMIT (SEE ENGINE MANUAL, CHAPTER 5).

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-404-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		02000 HRS	10404	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	1ST STAGE COMPRESSOR STATOR VANES		ALL	4000

ZONES	ACCESS PANELS
411	

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 FIRST STAGE COMPRESSOR STATOR VANES. N72-31-04-6A

1ST STAGE STATOR - INSPECTION/CHECK

1. Examine the 1st-Stage Stator Vanes (Fig. 601)

A. General

(1) This procedure gives the steps for the inspection of the 1st-stage stator assembly.

(2) The stator assembly is a circular flange to which the stator vanes are attached. This stator assembly is at the forward section of the front compressor, and is immediately aft of the fan rotor blades.

(3) When you examine the blades and vanes, make sure you find the cause of all foreign object damage (FOD), to make sure that the LP compressor is fully serviceable. FOD damage in this area can be an indication of a more dangerous problem. If you find FOD damage, make sure no other components in the same area are damaged.

(4) The limits in this section will help you know if the engine can continue to operate or if you must remove and repair it.

(5) The edges or surfaces of the vanes that you will examine were possibly blended. To blend a vane is to remove material around damage on the vane until the damaged area becomes smooth.

B. References

(1) AMM 72-31-04/801, 1st-Stage Stator

C. Access

(1) Location Zones
410 Left Engine
420 Right Engine

D. Prepare for the Procedure.

(1) Attach a DO-NOT-OPERATE tag to the ENG START switch on the overhead panel, P5.

E. Examine the 1st-Stage Stator Vanes.

(1) Replace or repair vanes that have nicks or dents (AMM 72-31-04/401).

(2) Compare the damage you find with Table 601 and the limits that follow (Fig. 601).

NOTE: These limits are for damage that was blended, and not for damage that is not blended.

TABLE 601
MAXIMUM PERMITTED BLEND LIMITS

VANE AREA	LIMIT
A	0.100 inch (2.540 mm)
B	0.090 inch (2.286 mm)
C	0.100 inch (2.540 mm)
D	0.090 inch (2.286 mm)
E	25 percent of local thickness

(a) Blended areas on the concave airfoil surface can be on no more than 20 percent of the surface area.

1) Rounded bottom dents are permitted.

(b) Blended areas on the convex airfoil surface can be on no more than 5 percent of the surface area.

(c) The sum of the lengths of all blended areas on the two edges of a vane must not be more than 0.500 inch (12.700 mm).

(d) No more than two blended areas at the maximum depth limit are permitted on each vane.

(e) Areas that are blended must have a length that is not less than four times the depth.

(f) The limits that follow are for blended areas that are at the maximum depth on opposite edges of the vane.

1) One blended area must not be immediately opposite the other.

2) One blended area must not be less than the vane width average from the other blended area.

(g) The limit that follows is for blended areas that are not at the maximum depth, are on opposite edges, and one is nearer than the vane width average to the other.

1) The sum of the depths of the two blended areas must not be more than the maximum depth for one blended nick.

(h) The sum of the lengths of all edge blended areas in the vane and shroud assembly must not be more than 6.000 inches (152.4 mm).

(i) All local blended areas on the concave and convex sides must have an area that is not less than 15 times the depth of the damage.

(j) Pitting and corrosion can be repaired if the damage does not have a depth that is more than 12 percent of the local vane thickness.

NOTE: Pitting is a concentration of corrosion at a point.

(k) The surface finish on a blended vane must be the same as the surface finish on a new vane.

(l) Damage which you can see on the opposite side of the vane is not permitted.

MECH	INSP

(m) Compare the damage to the sealing compound on the inner shroud with the limits that follow (Fig. 601):

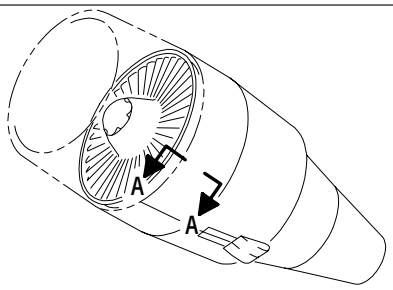
1) Very small cracks (called crazing), dryness, and areas where there is little bond between the sealing compound and the vane or shroud are permitted if the vane is not loose.

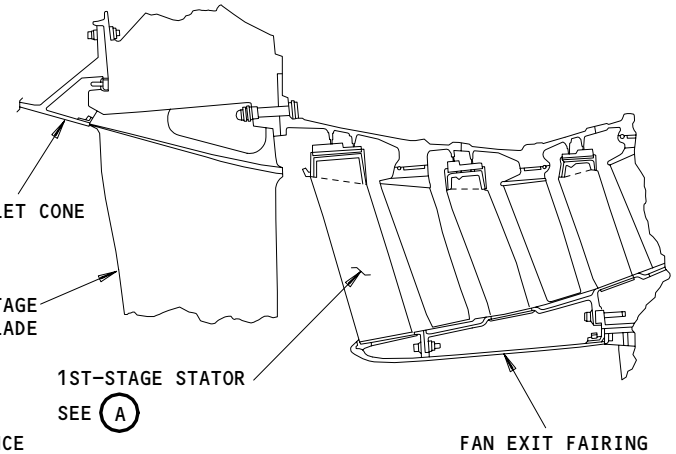
2) Very small cracks (called crazing), dryness, and areas where there is little bond between the sealing compound and the vane or shroud are not permitted if the vane is loose.

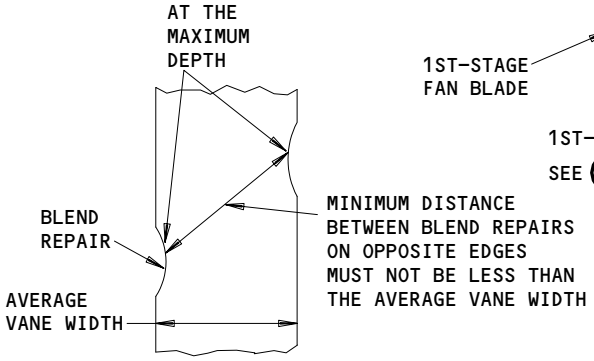
(n) Repair the vanes that must be repaired (AMM 72-31-04/801).

F. Put the airplane back to its usual condition.

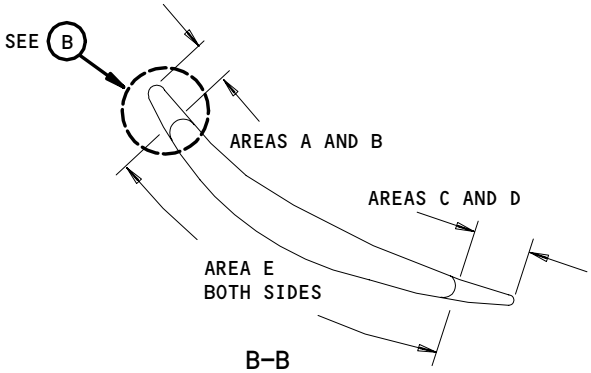
(1) Remove the DO-NOT-OPERATE tag from the ENG START switch on the P5 panel.

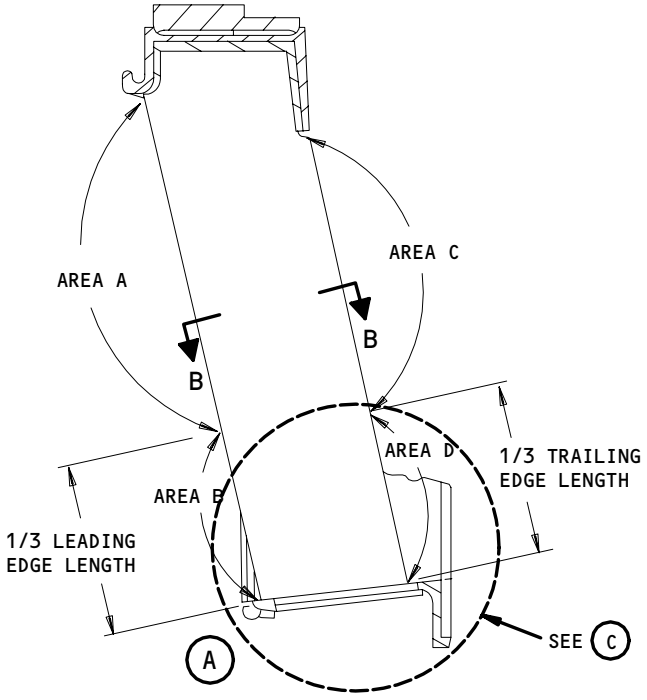


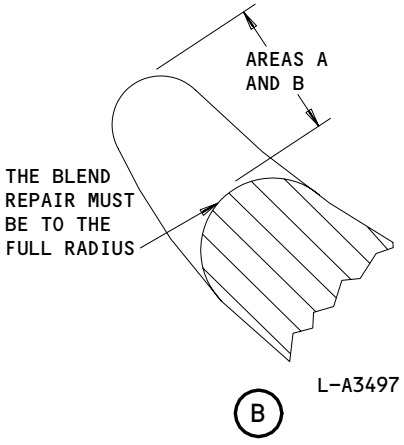




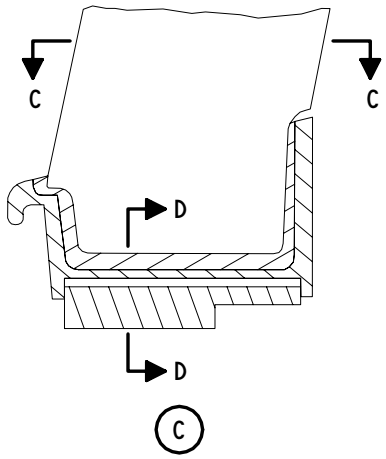
MINIMUM DISTANCE BETWEEN BLEND REPAIRS

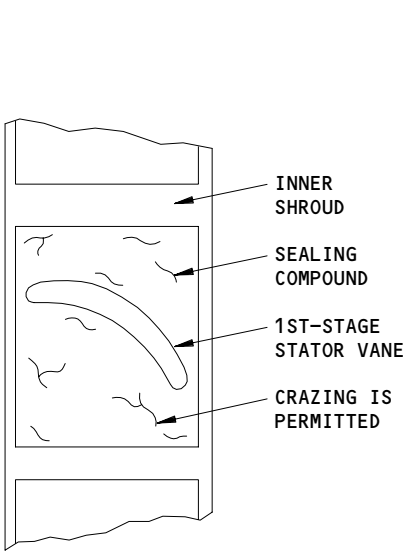






1st-Stage Stator Inspection
Figure 601 (Sheet 1)





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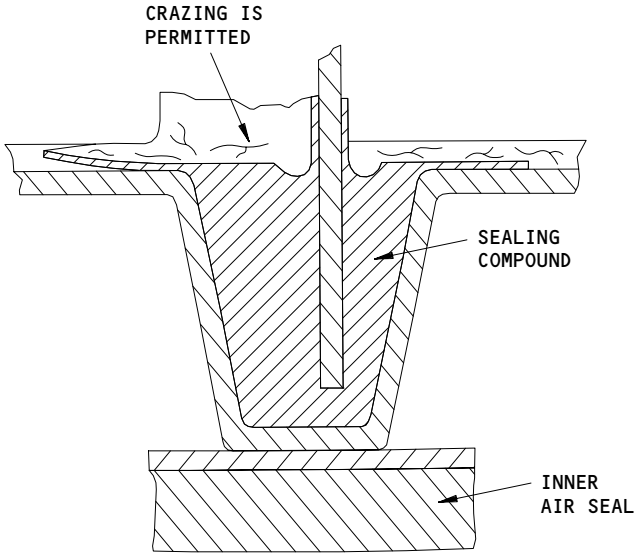

D-D

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1st-Stage Stator Inspection
Figure 601 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-404-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		02000 HRS	10404	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	1ST STAGE COMPRESSOR STATOR VANES		ALL	4000

ZONES	ACCESS PANELS
421	

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 FIRST STAGE COMPRESSOR STATOR VANES. N72-31-04-6A

1ST STAGE STATOR - INSPECTION/CHECK

1. Examine the 1st-Stage Stator Vanes (Fig. 601)

A. General

(1) This procedure gives the steps for the inspection of the 1st-stage stator assembly.

(2) The stator assembly is a circular flange to which the stator vanes are attached. This stator assembly is at the forward section of the front compressor, and is immediately aft of the fan rotor blades.

(3) When you examine the blades and vanes, make sure you find the cause of all foreign object damage (FOD), to make sure that the LP compressor is fully serviceable. FOD damage in this area can be an indication of a more dangerous problem. If you find FOD damage, make sure no other components in the same area are damaged.

(4) The limits in this section will help you know if the engine can continue to operate or if you must remove and repair it.

(5) The edges or surfaces of the vanes that you will examine were possibly blended. To blend a vane is to remove material around damage on the vane until the damaged area becomes smooth.

B. References

(1) AMM 72-31-04/801, 1st-Stage Stator

C. Access

(1) Location Zones
410 Left Engine
420 Right Engine

D. Prepare for the Procedure.

(1) Attach a DO-NOT-OPERATE tag to the ENG START switch on the overhead panel, P5.

E. Examine the 1st-Stage Stator Vanes.

(1) Replace or repair vanes that have nicks or dents (AMM 72-31-04/401).

(2) Compare the damage you find with Table 601 and the limits that follow (Fig. 601).

NOTE: These limits are for damage that was blended, and not for damage that is not blended.

TABLE 601
MAXIMUM PERMITTED BLEND LIMITS

VANE AREA	LIMIT
A	0.100 inch (2.540 mm)
B	0.090 inch (2.286 mm)
C	0.100 inch (2.540 mm)
D	0.090 inch (2.286 mm)
E	25 percent of local thickness

(a) Blended areas on the concave airfoil surface can be on no more than 20 percent of the surface area.

1) Rounded bottom dents are permitted.

(b) Blended areas on the convex airfoil surface can be on no more than 5 percent of the surface area.

MECH | INSP

(c) The sum of the lengths of all blended areas on the two edges of a vane must not be more than 0.500 inch (12.700 mm).

(d) No more than two blended areas at the maximum depth limit are permitted on each vane.

(e) Areas that are blended must have a length that is not less than four times the depth.

(f) The limits that follow are for blended areas that are at the maximum depth on opposite edges of the vane.

1) One blended area must not be immediately opposite the other.

2) One blended area must not be less than the vane width average from the other blended area.

(g) The limit that follows is for blended areas that are not at the maximum depth, are on opposite edges, and one is nearer than the vane width average to the other.

1) The sum of the depths of the two blended areas must not be more than the maximum depth for one blended nick.

(h) The sum of the lengths of all edge blended areas in the vane and shroud assembly must not be more than 6.000 inches (152.4 mm).

(i) All local blended areas on the concave and convex sides must have an area that is not less than 15 times the depth of the damage.

(j) Pitting and corrosion can be repaired if the damage does not have a depth that is more than 12 percent of the local vane thickness.

NOTE: Pitting is a concentration of corrosion at a point.

(k) The surface finish on a blended vane must be the same as the surface finish on a new vane.

(l) Damage which you can see on the opposite side of the vane is not permitted.

MECH	INSP

(m) Compare the damage to the sealing compound on the inner shroud with the limits that follow (Fig. 601):

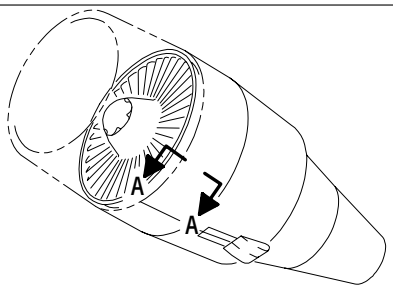
1) Very small cracks (called crazing), dryness, and areas where there is little bond between the sealing compound and the vane or shroud are permitted if the vane is not loose.

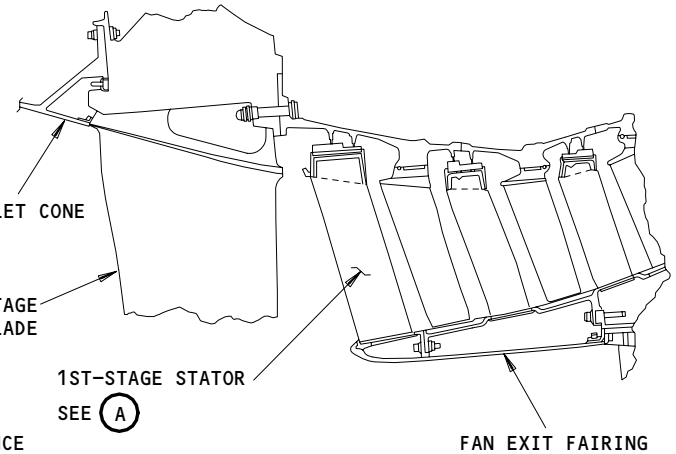
2) Very small cracks (called crazing), dryness, and areas where there is little bond between the sealing compound and the vane or shroud are not permitted if the vane is loose.

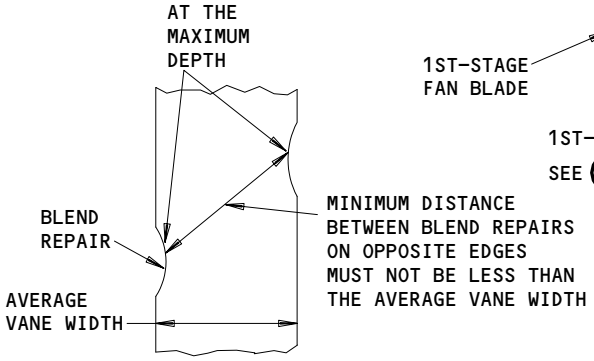
(n) Repair the vanes that must be repaired (AMM 72-31-04/801).

F. Put the airplane back to its usual condition.

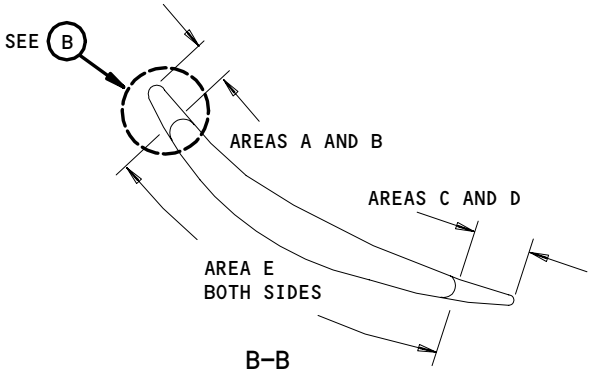
(1) Remove the DO-NOT-OPERATE tag from the ENG START switch on the P5 panel.

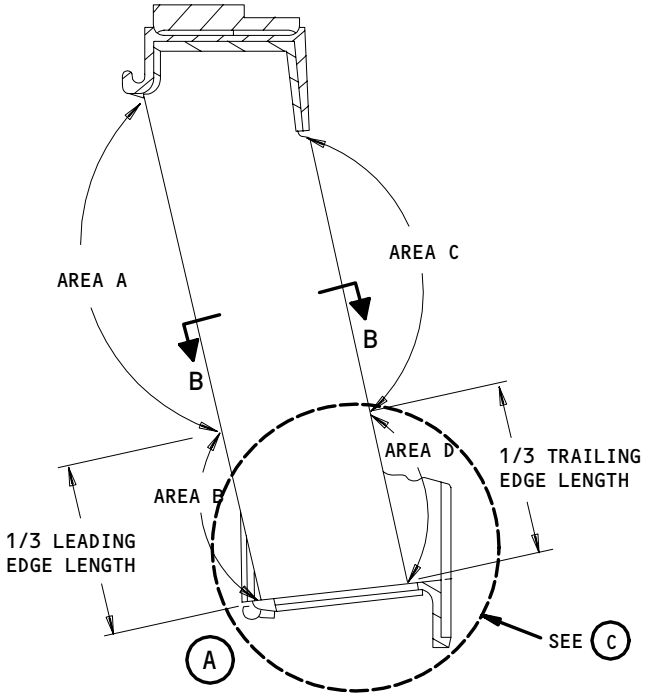


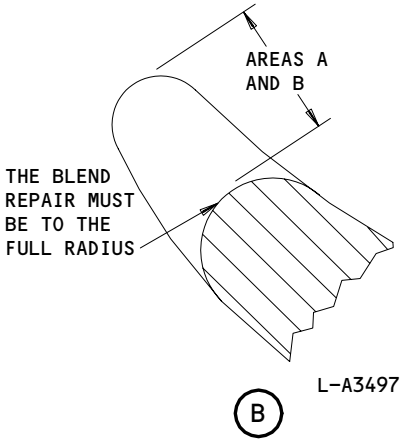




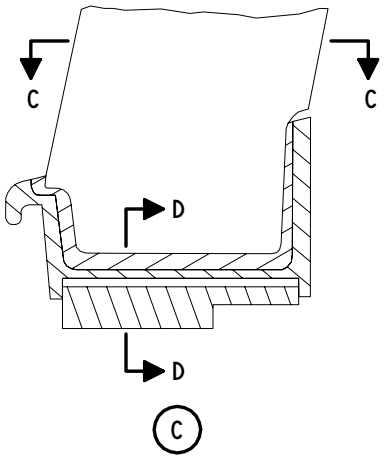
MINIMUM DISTANCE BETWEEN BLEND REPAIRS

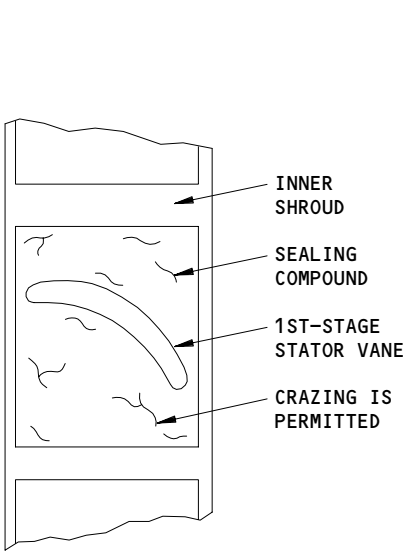




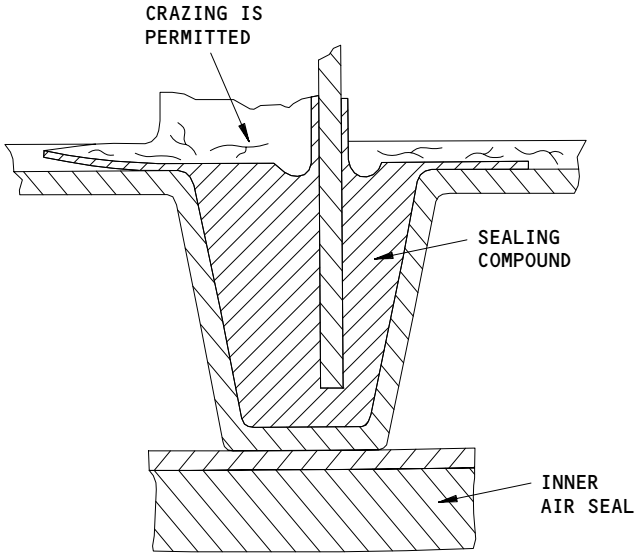


1st-Stage Stator Inspection
Figure 601 (Sheet 1)





C-C



D-D

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1st-Stage Stator Inspection
Figure 601 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-404-02-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		02000 HRS	10404	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	1.6 STAGE COMPRESSOR ROTOR BLADES		ALL	4000

ZONES	ACCESS PANELS
411	

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 1.6 STAGE COMPRESSOR ROTOR BLADES. N72-31-05-A

WITH A WHITE LIGHT, EXAMINE THE 1.6TH-STAGE BLADES FOR SIGNS OF FOD.
NOTE: TO DO A DETAILED INSPECTION, YOU CAN REMOVE THE 1ST-STAGE STATOR OR USE A BORESCOPE THROUGH THE FAN, IN THE THRU FAN AP. IF YOU FIND DAMAGE, REFER TO AMM 72-31-05/601 FOR THE DAMAGE LIMITS.

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-404-02-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		02000 HRS	10404	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	1.6 STAGE COMPRESSOR ROTOR BLADES		ALL	4000

ZONES	ACCESS PANELS
421	

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 1.6 STAGE COMPRESSOR ROTOR BLADES. N72-31-05-A

WITH A WHITE LIGHT, EXAMINE THE 1.6TH-STAGE BLADES FOR SIGNS OF FOD.
NOTE: TO DO A DETAILED INSPECTION, YOU CAN REMOVE THE 1ST-STAGE STATOR OR USE A BORESCOPE THROUGH THE FAN, IN THE THRU FAN AP. IF YOU FIND DAMAGE REFER TO AMM 72-31-05/601 FOR THE DAMAGE LIMITS.

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-405
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
SHOPS			LIFE LMT NOTE	99XXX	005	AUG 22/99

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
REPLACE	LOW PRESSURE COMPRESSOR DRUM ROTOR		ALL	4000

ZONES	ACCESS PANELS
411 421	

MECH	INSP	MPD ITEM NUMBER

DISCARD THE LOW PRESSURE COMPRESSOR DRUM ROTOR. N72-30-00-B
INTERVAL NOTE: AT MANUFACTURER'S LIFE LIMIT (SEE ENGINE MANUAL, CHAPTER 5).

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-406-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		00500 HRS	10101	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	FAN CASE RING SEGMENTS (RUBSTRIPS)		ALL	4000

ZONES	ACCESS PANELS
411	

MECH	INSP	MPD ITEM NUMBER

CHECK THE ENGINE 1 FAN CASE RING SEGMENTS (RUBSTRIPS) FOR WEAR AND DAMAGE. N72-33-01-6A

1. Examine the Fan Case Rubstrips (Fig. 601)

A. Equipment

(1) Gage - PWA 29156 , Pratt & Whitney, Commercial Products Division, 400 Main Street, East Hartford, CT 06108

NOTE: This gage is an alternative to the standard dial indicator depth gage.

(2) Gage - Depth, Standard Dial Indicatorm with tapered contact point

NOTE: This Depth gage is an alternative to the PWA 29156 gage.

(3) Mat - Protective, rubber Manufacturer's Association, grade sc43, neoprine sponge, 1 inch thick, 3x4 feet with warning streamers attached (three required)

B. Prepare for the Inspection

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch on the overhead panel, P5.

(2) Put the protective mat in the inlet cowl.

C. Do an Inspection of the Fan Case Rubstrip

(1) Do these steps to examine the ribs of the interrupted continuous groove (ICG) rubstrip on the fan case duct segments for worn areas:

(a) Use an approved dial depth gage with a tapered contact point or a PWA 29156 gage to measure the depth of the worn areas on the rubstrip.

1) Make sure there is no unwanted material in the rubstrip groove.

NOTE: Unwanted material in the rubstrip groove can cause incorrect depth values.

2) Make sure the point of the gage touches the bottom of the groove.

NOTE: It is possible that you must measure more than once at the same position to find the largest depth, because the bottom of each groove is rounded.

(b) If you use the PWA 29156 gage to measure the depth of the worn areas in the rubstrips, do the steps that follow:

1) Put the gage in the set master on the surface marked 0.260 inch (6.604 mm).

2) Set the revolution counter, the dial indicator hand, and the bezel to zero.

3) Calculate the value of the depth for each position.

NOTE: The depth that you measure must be subtracted from the 0.260 inch (6.604 mm) dimension to find the correct value of the depth. If you use a standard depth gage, it is not necessary to calculate the depth; the value on the gage is the correct value.

(c) Make a record of the position and the depth of the worn areas at the eight locations shown (Fig. 601).

1) Install the gage in the third groove from the front of the fan case (flange A).

2) Write the calculated value of the depth for each position.

(d) Calculate the average of the depth values at the three positions for each Group, A through F, as shown in Table 601.

1) The average for each group must not be less than 0.140 inch (3.556 mm) in depth.

2) If the average depth for one or more groups is less than 0.140 inch (3.556 mm) remove the fan case (AMM 72-33-01/401).

Group	Positions of the Gage	Group	Positions of the Gage
Group A	7, 8, 1	Group D	3, 4, 5
Group B	8, 1, 2	Group E	4, 5, 6
Group C	1, 2, 3	Group F	5, 6, 7

LOCATIONS OF THE DEPTH VALUES
TABLE 601

(2) Examine the duct segments as follows to find if they are bonded to the fan case.

NOTE: A duct segment that is not bonded is not permitted.

(a) With your finger, press the duct segment in the area where you think there is no bond.

1) Examine the segment carefully to see if there is play in the rubstrip.

(b) With the plastic end of a screwdriver or other tool, hit the rubstrip lightly all around.

1) Listen to the sound.

2) If the sound is a clear ring, (has a high frequency) the rubstrip is well bonded.

3) If the sound is a dull thud (has a low frequency), the rubstrip is not bonded.

(3) Compare the rib damage, cracks, and holes with the limits in table 601.

MECH	INSP

(a) The 60-hour continue-in-service limit for duct segments with rib damage that is more than the serviceable limits is as follows:

1) You can continue to operate the engine for 60 hours if 12 or less duct segments have rib damage that is more than the serviceable limits.

TABLE 601
DUCT SEGMENT INSPECTION LIMITS FOR RIB DAMAGE, CRACKS, AND HOLES

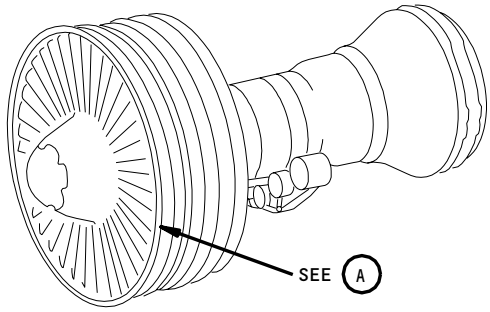
Examine	Serviceable Limits	Repairable Limits
Duct Segment Rib that is not There:		
Total length of each rib on each segment	3.0 inches (7.200 mm) Circumferentially Maximum	6.0 inches (152.400 mm) Circumferentially Maximum
Total length of one rib, on all segments	10.0 inches (254.200 mm) Circumferentially Maximum	15 inches (381.000 mm) Circumferentially Maximum
Distance from an area on an adjacent rib where there is no rib	6.0 inches (152.400 mm) Minimum	
Cracks:		
Width	0.015 inch (0.381 mm) Maximum	0.125 inch (3.175 mm) Maximum
Distance (from other Cracks)	4.0 inches (101.600 mm) Minimum	
Length of a circum-ferential crack	4.0 inches (101.600 mm) Maximum	6.0 inches (152.400 mm) Maximum
Length of an Axial Crack That is Within 0.250 inch (6.350 mm) of the Axial Edge of the Segment	No Limit	
Length of other Axial Cracks	4.0 inches (101.600 mm) Maximum	
Holes:		
Dimension at the largest width	0.125 inch (3.175 mm) Maximum	6.0 inches (152.400 mm) Maximum
Depth	0.125 inch (3.175 mm) Maximum	No Limit

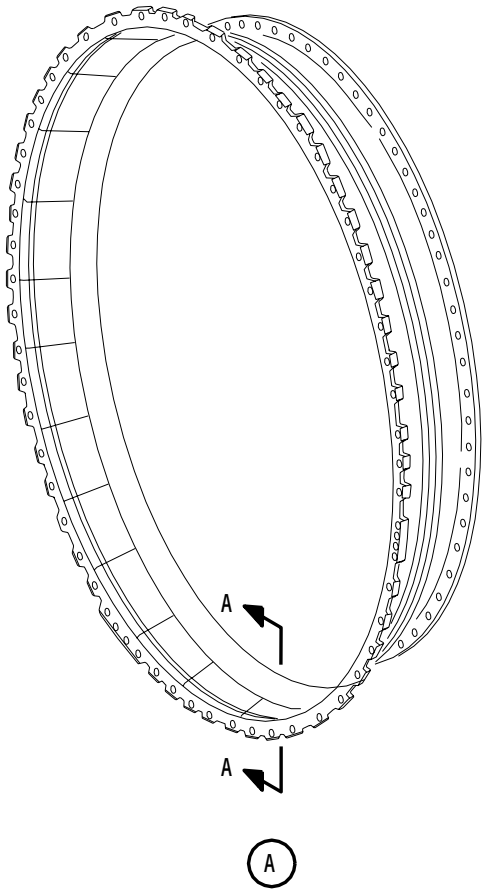
MECH	INSP

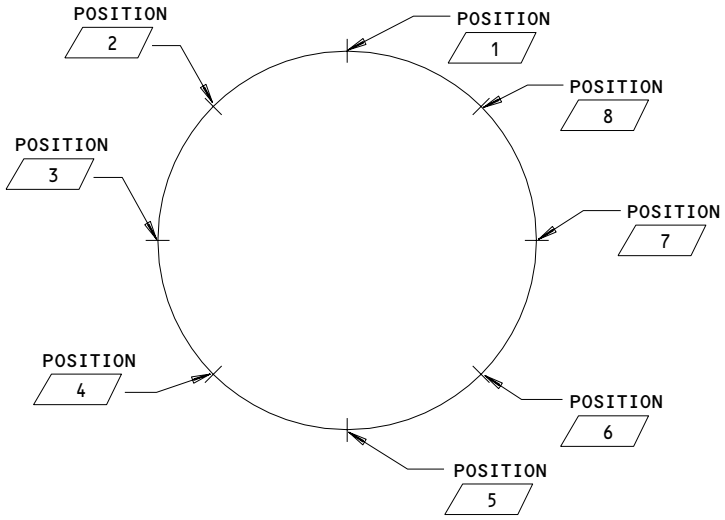
(b) Repair the damage that you find (AMM 72-33-01/801).

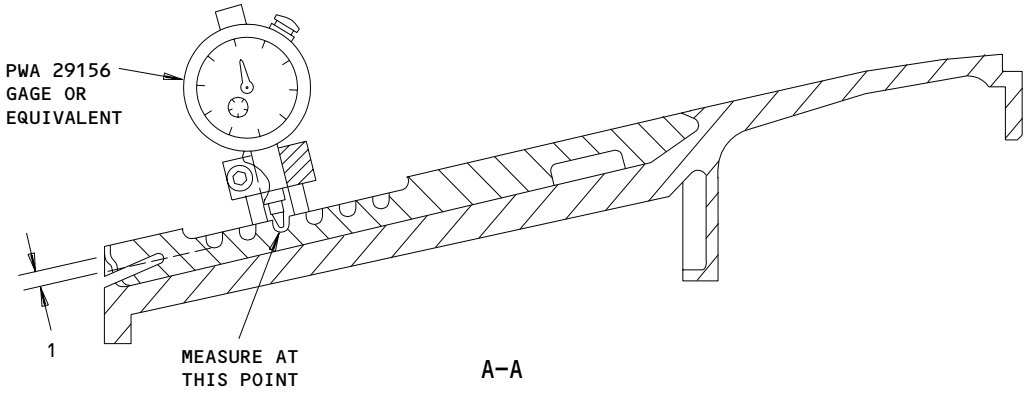
(4) Remove the mat from the inlet cowl.

(5) Remove the DO-NOT-OPERATE tag from the ENG START switch on panel P5.









A-A

1. 0.140 INCH (3.556 MM) MINIMAL DEPTH, AVERAGE OVER SPECIFIED POSITIONS

L-A3777

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Fan Case Duct Segment (rubstrip) Wear
Figure 601

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-406-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		00500 HRS	10101	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	FAN CASE RING SEGMENTS (RUBSTRIPS)		ALL	4000

ZONES	ACCESS PANELS
421	

MECH | INSP

MPD ITEM NUMBER

CHECK THE ENGINE 2 FAN CASE RING SEGMENTS (RUBSTRIPS) FOR WEAR AND DAMAGE. N72-33-01-6A

1. Examine the Fan Case Rubstrips (Fig. 601)

A. Equipment

(1) Gage - PWA 29156 , Pratt & Whitney, Commercial Products Division, 400 Main Street, East Hartford, CT 06108

NOTE: This gage is an alternative to the standard dial indicator depth gage.

(2) Gage - Depth, Standard Dial Indicatorm with tapered contact point

NOTE: This Depth gage is an alternative to the PWA 29156 gage.

(3) Mat - Protective, rubber Manufacturer's Association, grade sc43, neoprine sponge, 1 inch thick, 3x4 feet with warning streamers attached (three required)

B. Prepare for the Inspection

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch on the overhead panel, P5.

(2) Put the protective mat in the inlet cowl.

C. Do an Inspection of the Fan Case Rubstrip

(1) Do these steps to examine the ribs of the interrupted continuous groove (ICG) rubstrip on the fan case duct segments for worn areas:

MECH | INSP

(a) Use an approved dial depth gage with a tapered contact point or a PWA 29156 gage to measure the depth of the worn areas on the rubstrip.

1) Make sure there is no unwanted material in the rubstrip groove.

NOTE: Unwanted material in the rubstrip groove can cause incorrect depth values.

2) Make sure the point of the gage touches the bottom of the groove.

NOTE: It is possible that you must measure more than once at the same position to find the largest depth, because the bottom of each groove is rounded.

(b) If you use the PWA 29156 gage to measure the depth of the worn areas in the rubstrips, do the steps that follow:

1) Put the gage in the set master on the surface marked 0.260 inch (6.604 mm).

2) Set the revolution counter, the dial indicator hand, and the bezel to zero.

3) Calculate the value of the depth for each position.

NOTE: The depth that you measure must be subtracted from the 0.260 inch (6.604 mm) dimension to find the correct value of the depth. If you use a standard depth gage, it is not necessary to calculate the depth; the value on the gage is the correct value.

(c) Make a record of the position and the depth of the worn areas at the eight locations shown (Fig. 601).

1) Install the gage in the third groove from the front of the fan case (flange A).

2) Write the calculated value of the depth for each position.

(d) Calculate the average of the depth values at the three positions for each Group, A through F, as shown in Table 601.

1) The average for each group must not be less than 0.140 inch (3.556 mm) in depth.

2) If the average depth for one or more groups is less than 0.140 inch (3.556 mm) remove the fan case (AMM 72-33-01/401).

Group	Positions of the Gage	Group	Positions of the Gage
Group A	7, 8, 1	Group D	3, 4, 5
Group B	8, 1, 2	Group E	4, 5, 6
Group C	1, 2, 3	Group F	5, 6, 7

LOCATIONS OF THE DEPTH VALUES
TABLE 601

(2) Examine the duct segments as follows to find if they are bonded to the fan case.

NOTE: A duct segment that is not bonded is not permitted.

(a) With your finger, press the duct segment in the area where you think there is no bond.

1) Examine the segment carefully to see if there is play in the rubstrip.

(b) With the plastic end of a screwdriver or other tool, hit the rubstrip lightly all around.

1) Listen to the sound.

2) If the sound is a clear ring, (has a high frequency) the rubstrip is well bonded.

3) If the sound is a dull thud (has a low frequency), the rubstrip is not bonded.

(3) Compare the rib damage, cracks, and holes with the limits in table 601.

MECH	INSP

(a) The 60-hour continue-in-service limit for duct segments with rib damage that is more than the serviceable limits is as follows:

1) You can continue to operate the engine for 60 hours if 12 or less duct segments have rib damage that is more than the serviceable limits.

TABLE 601
DUCT SEGMENT INSPECTION LIMITS FOR RIB DAMAGE, CRACKS, AND HOLES

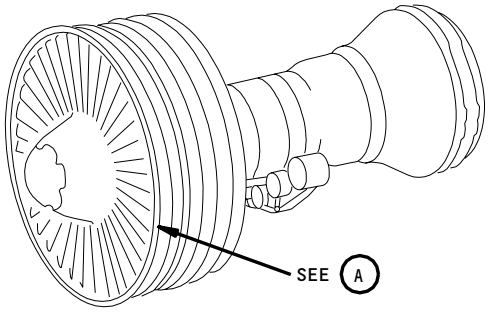
Examine	Serviceable Limits	Repairable Limits
Duct Segment Rib that is not There:		
Total length of each rib on each segment	3.0 inches (7.200 mm) Circumferentially Maximum	6.0 inches (152.400 mm) Circumferentially Maximum
Total length of one rib, on all segments	10.0 inches (254.200 mm) Circumferentially Maximum	15 inches (381.000 mm) Circumferentially Maximum
Distance from an area on an adjacent rib where there is no rib	6.0 inches (152.400 mm) Minimum	
Cracks:		
Width	0.015 inch (0.381 mm) Maximum	0.125 inch (3.175 mm) Maximum
Distance (from other Cracks)	4.0 inches (101.600 mm) Minimum	
Length of a circumferential crack	4.0 inches (101.600 mm) Maximum	6.0 inches (152.400 mm) Maximum
Length of an Axial Crack That is Within 0.250 inch (6.350 mm) of the Axial Edge of the Segment	No Limit	
Length of other Axial Cracks	4.0 inches (101.600 mm) Maximum	
Holes:		
Dimension at the largest width	0.125 inch (3.175 mm) Maximum	6.0 inches (152.400 mm) Maximum
Depth	0.125 inch (3.175 mm) Maximum	No Limit

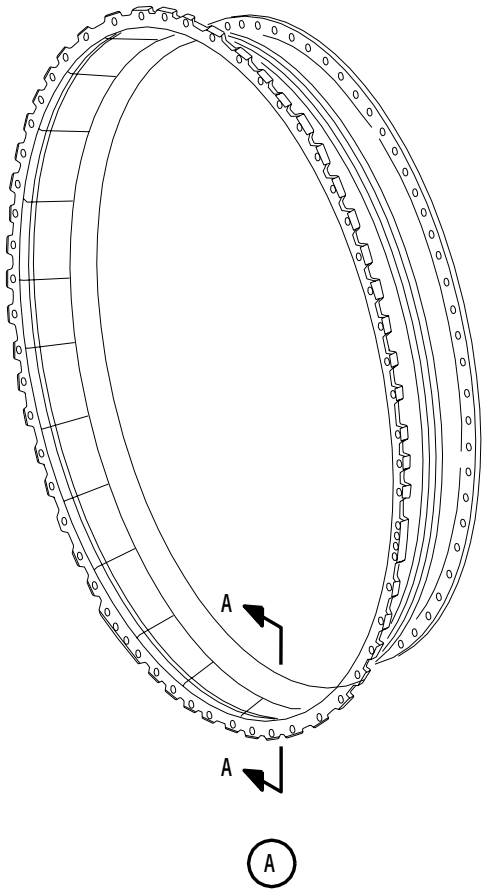
MECH	INSP

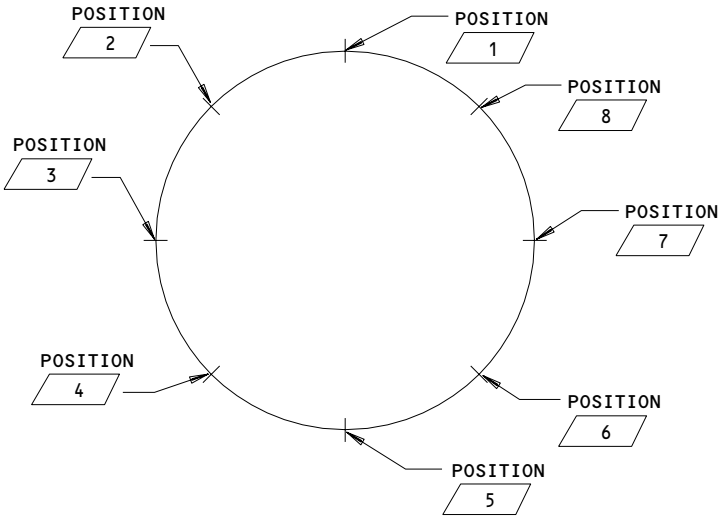
(b) Repair the damage that you find (AMM 72-33-01/801).

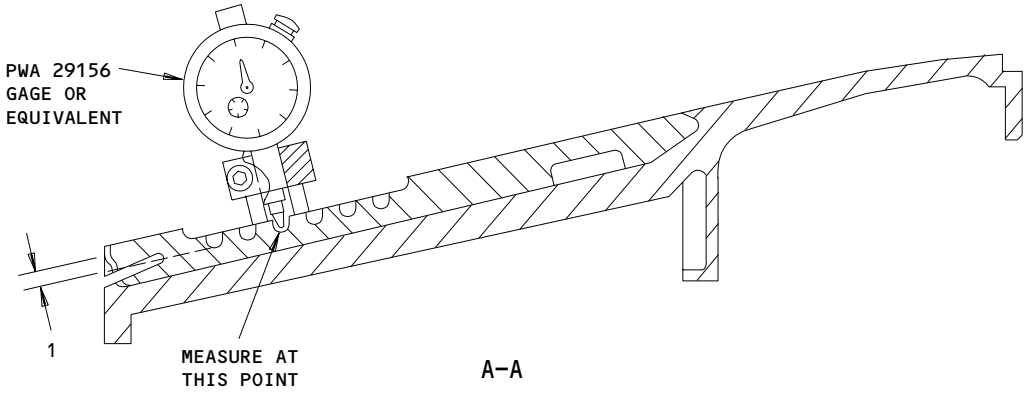
(4) Remove the mat from the inlet cowl.

(5) Remove the DO-NOT-OPERATE tag from the ENG START switch on panel P5.









1. 0.140 INCH (3.556 MM) MINIMAL DEPTH, AVERAGE OVER SPECIFIED POSITIONS

L-A3777

0987

Fan Case Duct Segment (rubstrip) Wear
Figure 601

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-407-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		01000 HRS	10202	011	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	FAN EXIT CASE AND VANES ASSEMBLY		ALL	4000

ZONES	ACCESS PANELS
411	413AL 414AR 415AL 416AR 417AL 418AR

MECH | INSP

MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 FAN EXIT CASE AND VANES ASSEMBLY FOR CONDITION AND SECURITY. N72-33-02-6A

1. Examine the Fan Exit Case and Vane

A. References

(1) AMM 70-11-06/201, Flourescent Penetrant Inspection

(2) AMM 71-11-04/201, Fan Cowl Panels

(3) AMM 71-11-06/201, Core Cowl Panels

(4) AMM 72-33-02/801, Fan Exit Case and Vane - Approved Repairs

(5) AMM 78-31-00/201, Thrust Reverser System

B. Access

(1) Location Zones

411 No. 1 Engine (Left)
421 No. 2 Engine (Right)

MECH | INSP

(2) Access Panels

413AL	Fan Cowl Panel (Left)
414AR	Fan Cowl Panel (Right)
415AL	Thrust Reverser (Left)
416AR	Thrust Reverser (Right)
417AL	Core Cowl Panel (Left)
418AR	Core Cowl Panel (Right)
423AL	Fan Cowl Panel (Left)
424AR	Fan Cowl Panel (Right)
425AL	Thrust Reverser (Left)
426AR	Thrust Reverser (Right)
427AL	Core Cowl Panel (Left)
428AR	Core Cowl Panel (Right)

C. Prepare for the Inspection

(1) Attach the DO-NOT-OPERATE tags to the ENG START switch on the overhead panel, P5.

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

(3) Open the fan cowl panels (AMM 71-11-04/201).

(4) Open the core cowl panels (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(5) Open the thrust reversers (AMM 78-31-00/201).

D. Procedure

(1) Visually compare the damage you find (on areas other than the vanes) to the damage limits in Table 601 (Fig. 601).

(a) If you find damage that could cause a crack in a repair weld or a permitted dent, do a fluorescent pentrant inspection (FPI) with ultra high sensitivity penetrant (AMM 70-11-06/201).

TABLE 601
INSPECTION OF AREAS OTHER THAN THE VANES

Examine	Damage Limits	Necessary Procedure
ON ENGINES WITHOUT PW SB 72-262; Lockwire: not there, loose, or broken	None are permitted	Repair the damaged lockwire immediately (AMM 72-33-02/801)
ON ENGINES WITH PW SB 72-262; Nuts: not there, or loose	None are permitted	Replace the nuts that are not there and tighten the nuts that are loose (AMM 72-33-02/801).
Flanges B1 and B2, damaged corners:		If the damage is less than the limits, repair the flange in less than 50 hours.
Index 1	0.060 inch (1.542 mm), maximum, 2 locations	Damage that is more than the limits is not permitted.
Index 2	0.060 inch (1.524 mm), maximum	
Index 3	This must not be less than ten times Index 2	

TABLE 601
INSPECTION OF AREAS OTHER THAN THE VANES

Examine	Damage Limits	Necessary Procedure
Circumferential length of each incident	1.000 inch (25.400 mm) maximum	Damage that is more than the limits is not permitted.
Total Circumferential length, all damage, on each flange	24.000 inches (609.600 mm) maximum	Damage that is more than the limits is not permitted.
Repair Welds: cracks in the weld	None are permitted	If there are cracks, you must remove the case and vane assembly.
Other Areas: Dents	0.050 inch (1.270 mm) in depth, maximum, with rounded bottoms	Dents that are less than the limits and have no cracks, are permitted. If the dent is more than the limits, you must remove the case and vane assembly
Pits	0.010 inch (0.254 mm) in depth, maximum	You must make the area smooth. If the damage is worse than the limits, you must remove the case and vane assembly.
Cracks in the Inner Case	None are permitted	If there are cracks in the inner case, you must remove the case and vane assembly.
Cracks in the Outer Case	1.000 inch (25.400 mm) maximum circumferential length 0.500 inch (12.700 mm) maximum axial length	The engine can continue to operate for 20 more hours, if the crack has all 3 of the conditions that follow: 1) The crack is less than the limits. 2) You correctly stop drill the crack with a 0.0625 inch (0.1581 mm) drill 3) The crack does not go into a flange or boss.

(2) See if the vane damage is local and isolated.

(a) If the vane damage is not local and isolated, you must replace the vane immediately.

(3) Visually compare the damage you find on the vanes with the limits in Table 602 (Fig. 602).

TABLE 602
INSPECTION OF THE FAN EXIT VANES

Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Area A: Chord depth (axial length)	0.100 inch (2.540 mm) maximum *	No procedure is necessary, but you must examine it again in less than 50 hours and at the next "A" check for deterioration. If there is deterioration, repair the vane with a small patch in less than 50 hours.
	More than 0.100 inch (2.54 mm) in depth.*	Remove the damaged fan exit vane in less than 50 hours.

TABLE 602
INSPECTION OF THE FAN EXIT VANES

Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Area B: Chord depth (axial length)	0.100 inch (2.540 mm) maximum *	No procedure is necessary, but you must examine it again in less than 50 hours and at the next "A" check for deterioration. If there is deterioration, repair the vane with a small patch in less than 50 hours.
	Between 0.100-0.375 inch (2.5-9.5 mm) in depth.*	Repair the vane with a large patch in less than 50 hours.
	More than 0.375 inch (9.525 mm) in depth.*	Remove the damaged vane immediately.
Radial Length	More than 1.000 inch (2.540 mm) in length	Remove the damaged vane immediately.
Quantity of damage on each vane	No damage is more than 0.100 inch (2.540 mm) in depth.*	No procedure is necessary.
	4 maximum if the chord depth is 0.100 - 0.150 inch (2.54 - 3.81 mm). This counts against the 4 allowed above.	Repair the vane in less than 50 hours.
	More than one with a chord depth that is more than 0.150 inch (3.81 mm).	Remove the vane in less than 50 hours.

TABLE 602
INSPECTION OF THE FAN EXIT VANES

Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Area C for: Nicks, dents, pits, and chips	Broken composite fibers	Repair the vane with a small patch in less than 50 hours.
	More than 0.030 inch (0.762 mm) in depth	Remove or replace the vane in less than 50 hours.
	More than 0.300 inch (7.620 mm) in width or height	Remove or replace the vane in less than 50 hours.
Area D for: Damage that decreased the chord length	Chord decreased by not more than 0.150 inch (3.810 mm)	Repair the vane with a small patch in less than 50 hours.
	Chord decreased by more than 0.150 inch (3.810 mm)	Remove or replace the vane in less than 50 hours.
Delamination	More than 1.0 square inch (645. square mm) in area	Remove or replace the vane in less than 50 hours.
Delamination/ Missing Wire Mesh	Full axial width both sides up to full span.	Replace leading edge up to full span.

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TABLE 602
INSPECTION OF THE FAN EXIT VANES

Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Erosion of Leading edge (Wire mesh Configurat-ion)	Any location on leading edge up to 0.150 inch (3.81 mm) in depth and 60 percent of length of FEGV maximum.	Replace wire mesh leading edge up to full span.
		Replace with metal leading edge or wire mesh up to full span.
	Any location on leading edge beyound 0.150 inch (3.81 mm) in depth and 60 percent of length of FEGV maximum.	Replace vane.
Metal Leading Edge for dents and impact only (Visually inspect only)	Dents or other damage up to 0.200 inch (5.080 mm) in length and 0.050 inch (1.270 mm) depth and within 3.0 inches (76.200 mm) of either base (Area A).	Serviceable
	Dents beyound 0.200 inch (5.080 mm) in length and 0.050 inch (1.270 mm) depth, and located beyound 3.0 inches (76.200 mm) of either Base (Area A)	Remove the vane at next shop visit

TABLE 602
INSPECTION OF THE FAN EXIT VANES

Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Metal Leading Edge disbonded from vane (Visually inspect only)	Visual inspection shows leading edge is seperated from vane airfoil on one side only, and separation does not extend beyound 3.0 inches (76.200 mm) of either Base (Area A).	Serviceable
	Visual inspection shows leading edge is separated from vane airfoil on one side only, and separation does extend beyound 3.0 inches (76.200 mm) of either Base (Area A).	Remove the vane at next shop visit
	Visual inspections shows leading edge is separated from vane airfoil on both sides at the same location or is completely missing.	Remove vane immediately (see Note)

*NOTE: It is acceptable to continue service with leading edge missing or removed (operator's discretion). Vane will quickly erode and may not be repairable later. The same time and spacing limits apply as if the vane was not there and any vanes missing leading edges must be included in vane not there criteria.

TABLE 602 INSPECTION OF THE FAN EXIT VANES		
Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Metal leading edge contains crack(s). (Visually inspect only)	Any degree of cracking whether isolated or interconnected	Remove vane immediately (See Note)
Vanes that are not there	3 vanes maximum 4-5 vanes can be gone, if no more than 3 are adjacent and there is not less than 5 vanes between each area of vanes that are gone	Install a replacement vane during the subsequent removal of the engine. Immediately remove broken pieces. Install replacement vanes in less than 50 hours. If there are more vanes gone than the limit, install replacement vanes immediately.

(4) Visually compare the damage you find on the vane platforms with the limits in Table 603 (Fig. 603).

TABLE 603 INSPECTION OF VANE PLATFORMS		
Damage	Damage Limits	Necessary Procedure
Cracks	The base platform section on one side of a crack in Area A makes a continuous surface with the section on the other side of the crack	Serviceable

TABLE 603
INSPECTION OF VANE PLATFORMS

Damage	Damage Limits	Necessary Procedure
	The base platform section on one side of a crack in Area A is 0.100 inch (2.540 mm), or more, above the section on the other side of the crack.	Serviceable
	* NOTE: If a crack in the base platform could lengthen to cause a piece to not be there, it is permitted to remove the piece.	
	A crack in the structural section of the vane base makes the vane loose more, above the section on the other side of the crack.	Repair the vane base immediately (AMM 72-33-02/801)
	15 cracks in each mold	No procedure is necessary.
	More than 15 cracks in one mold	Remove the vane within 50 hours (AMM 72-33-02/801).
	Cracks in the mold with spaces between the vane base or the vane	Remove the vane within 50 hours (AMM 72-33-02/801).
	Cracks in the mold that cause damage to the attachment holes in the vane bases	Remove the vane within 50 hours (AMM 72-33-02/801).

TABLE 603
INSPECTION OF VANE PLATFORMS

Damage	Damage Limits	Necessary Procedure
Piece or pieces not there	In Area A	Engine can continue to operate until the next scheduled maintenance visit with inspection at 2A check intervals for vane security and further damage Any amount can be missing on one single vane. A total of 5 vanes can have this condition. Any two vanes with this condition must be separated by one undamaged vane.
Piece of the inner diameter or outer diameter vane base that is not there.	In Area A In the structural section of the base which makes the vane loose.	Repair the vane or base immediately (AMM 72-33-02/801). Remove the vane within 50 hours (AMM 72-33-02/801).
* NOTE: Foam baffles under the base platform can be missing in any amount.		

E. Put the Airplane back to its Usual Condition

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Close the thrust reversers (AMM 78-31-00/201).

(2) Close the core cowl panels (AMM 71-11-06/201).

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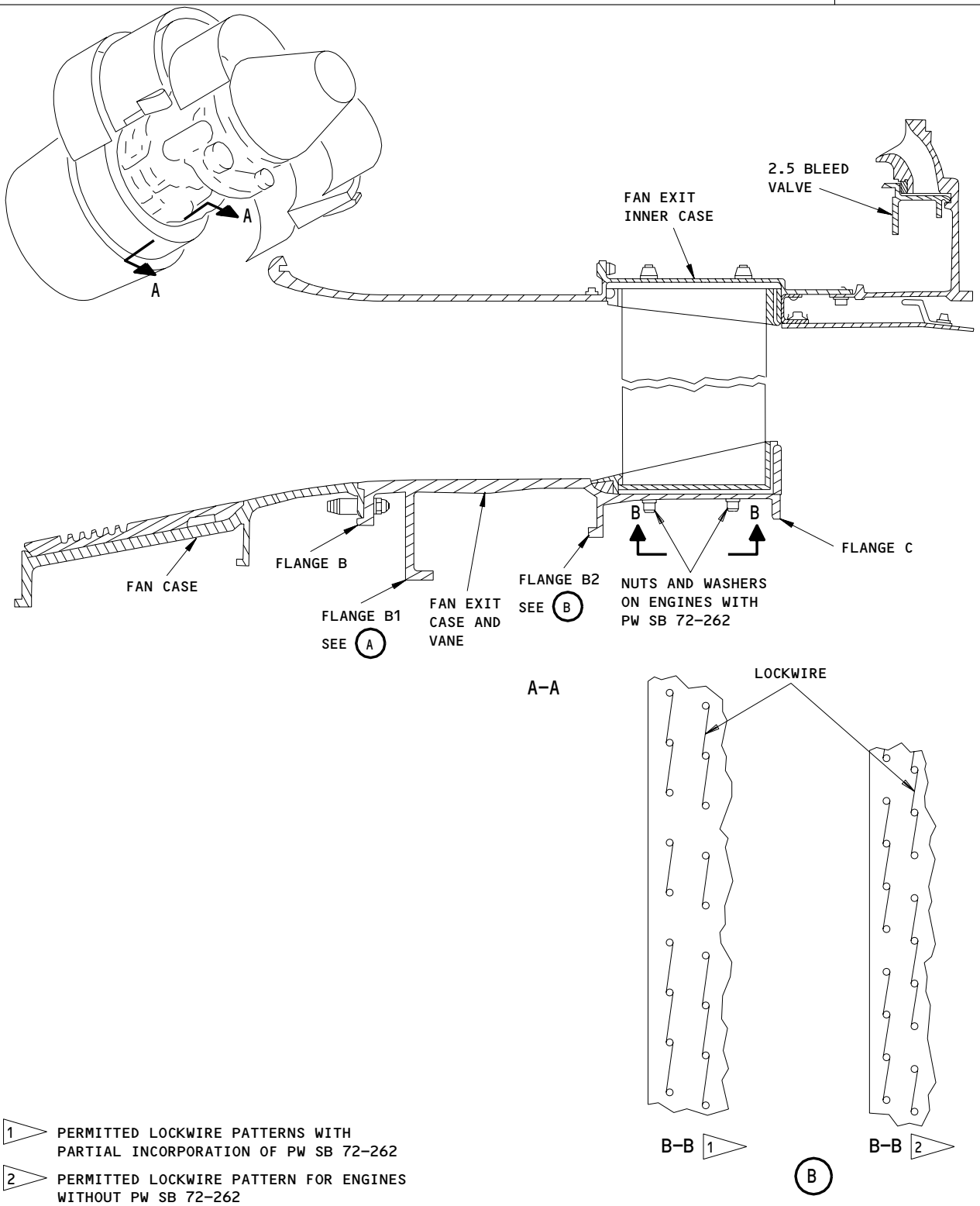
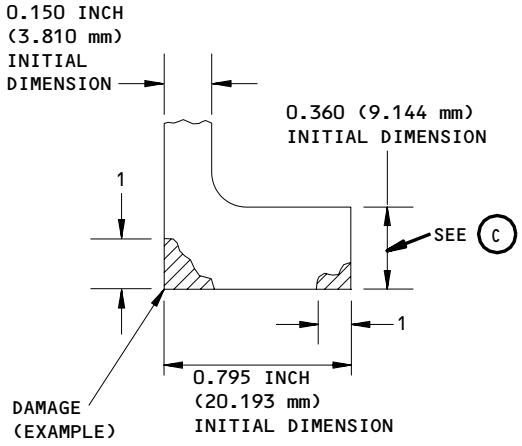
(3) Close the fan cowl panels (AMM 71-11-04/201).

(4) Do the activation procedure for the thrust reversers (AMM 78-31-00/201).

(5) Remove the DO-NOT-OPERATE tag from the ENG START switch on the P5 panel.

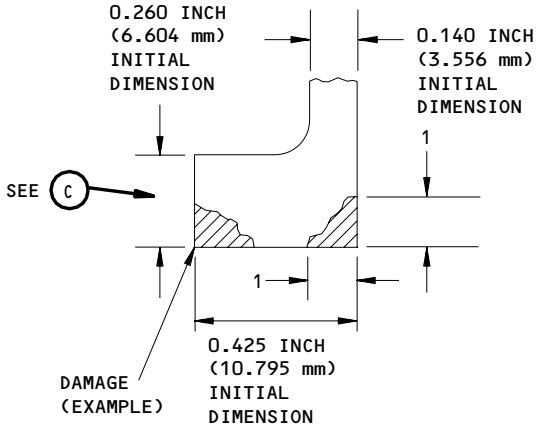


Fan Exit Case Inspection
Figure 601 (Sheet 1)



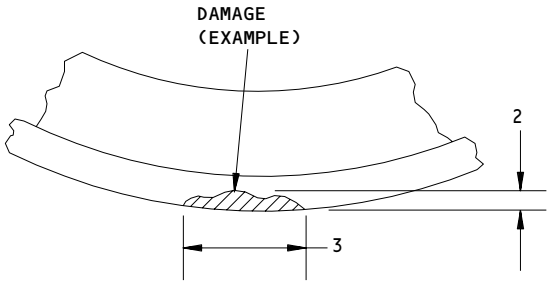
FLANGE B1

A



FLANGE B2

B

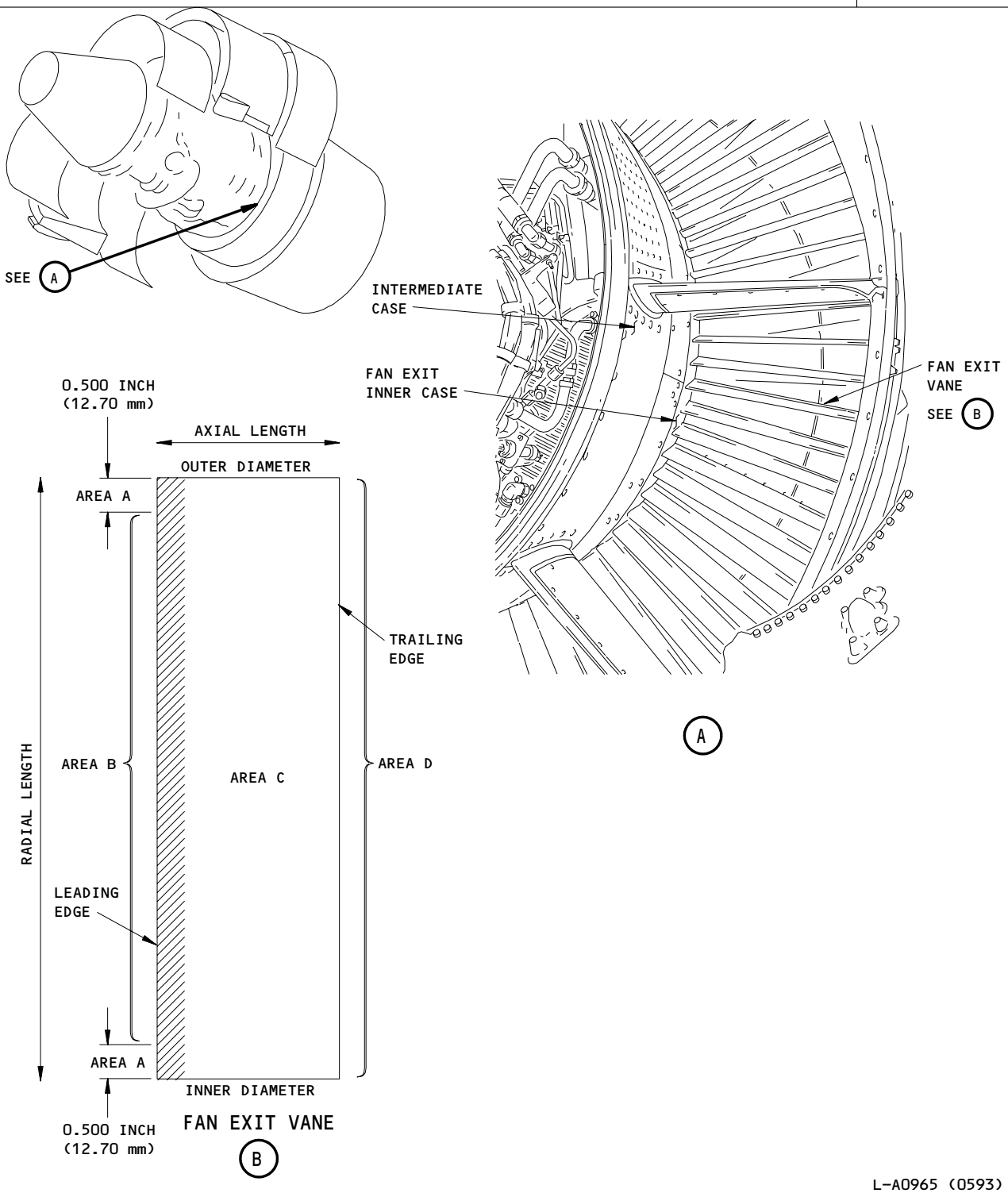


FORWARD VIEW OF FLANGE B1 OR
REAR VIEW OF FLANGE B2

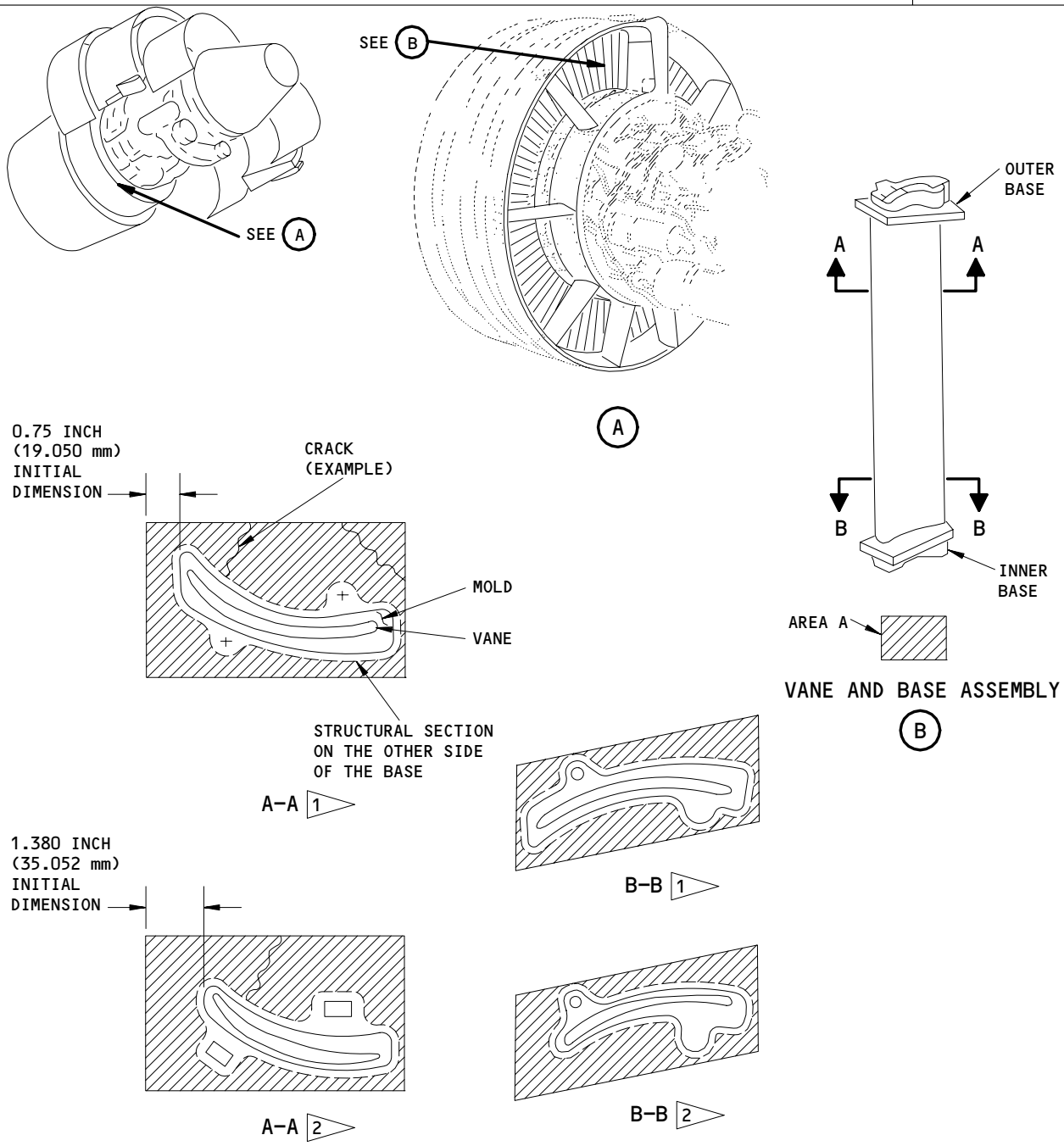
C

L-A7755 (0000)

Fan Exit Case Inspection
Figure 601 (Sheet 2)



Inspection of the Vane Airfoils
Figure 602 (Sheet 1)



1 ENGINES WITHOUT PW SB 72-262

2 ENGINES WITH PW SB 72-262

L-A7587

Fan Exit Vane Base Inspection
Figure 603

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-407-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		01000 HRS	10202	011	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	FAN EXIT CASE AND VANES ASSEMBLY		ALL	4000

ZONES	ACCESS PANELS
421	423AL 424AR 425AL 426AR 427AL 428AR

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MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 FAN EXIT CASE AND VANES ASSEMBLY FOR CONDITION AND SECURITY. N72-33-02-6A

1. Examine the Fan Exit Case and Vane

A. References

(1) AMM 70-11-06/201, Flourescent Penetrant Inspection

(2) AMM 71-11-04/201, Fan Cowl Panels

(3) AMM 71-11-06/201, Core Cowl Panels

(4) AMM 72-33-02/801, Fan Exit Case and Vane - Approved Repairs

(5) AMM 78-31-00/201, Thrust Reverser System

B. Access

(1) Location Zones

411 No. 1 Engine (Left)
421 No. 2 Engine (Right)

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(2) Access Panels

413AL	Fan Cowl Panel (Left)
414AR	Fan Cowl Panel (Right)
415AL	Thrust Reverser (Left)
416AR	Thrust Reverser (Right)
417AL	Core Cowl Panel (Left)
418AR	Core Cowl Panel (Right)
423AL	Fan Cowl Panel (Left)
424AR	Fan Cowl Panel (Right)
425AL	Thrust Reverser (Left)
426AR	Thrust Reverser (Right)
427AL	Core Cowl Panel (Left)
428AR	Core Cowl Panel (Right)

C. Prepare for the Inspection

(1) Attach the DO-NOT-OPERATE tags to the ENG START switch on the overhead panel, P5.

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

(3) Open the fan cowl panels (AMM 71-11-04/201).

(4) Open the core cowl panels (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(5) Open the thrust reversers (AMM 78-31-00/201).

D. Procedure

(1) Visually compare the damage you find (on areas other than the vanes) to the damage limits in Table 601 (Fig. 601).

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(a) If you find damage that could cause a crack in a repair weld or a permitted dent, do a fluorescent pentrant inspection (FPI) with ultra high sensitivity penetrant (AMM 70-11-06/201).

TABLE 601
INSPECTION OF AREAS OTHER THAN THE VANES

Examine	Damage Limits	Necessary Procedure
ON ENGINES WITHOUT PW SB 72-262; Lockwire: not there, loose, or broken	None are permitted	Repair the damaged lockwire immediately (AMM 72-33-02/801)
ON ENGINES WITH PW SB 72-262; Nuts: not there, or loose	None are permitted	Replace the nuts that are not there and tighten the nuts that are loose (AMM 72-33-02/801).
Flanges B1 and B2, damaged corners:		If the damage is less than the limits, repair the flange in less than 50 hours.
Index 1	0.060 inch (1.542 mm), maximum, 2 locations	Damage that is more than the limits is not permitted.
Index 2	0.060 inch (1.524 mm), maximum	
Index 3	This must not be less than ten times Index 2	

TABLE 601
INSPECTION OF AREAS OTHER THAN THE VANES

Examine	Damage Limits	Necessary Procedure
Circumferential length of each incident	1.000 inch (25.400 mm) maximum	Damage that is more than the limits is not permitted.
Total Circumferential length, all damage, on each flange	24.000 inches (609.600 mm) maximum	Damage that is more than the limits is not permitted.
Repair Welds: cracks in the weld	None are permitted	If there are cracks, you must remove the case and vane assembly.
Other Areas: Dents	0.050 inch (1.270 mm) in depth, maximum, with rounded bottoms	Dents that are less than the limits and have no cracks, are permitted. If the dent is more than the limits, you must remove the case and vane assembly
Pits	0.010 inch (0.254 mm) in depth, maximum	You must make the area smooth. If the damage is worse than the limits, you must remove the case and vane assembly.
Cracks in the Inner Case	None are permitted	If there are cracks in the inner case, you must remove the case and vane assembly.
Cracks in the Outer Case	1.000 inch (25.400 mm) maximum circumferential length 0.500 inch (12.700 mm) maximum axial length	The engine can continue to operate for 20 more hours, if the crack has all 3 of the conditions that follow: 1) The crack is less than the limits. 2) You correctly stop drill the crack with a 0.0625 inch (0.1581 mm) drill 3) The crack does not go into a flange or boss.

(2) See if the vane damage is local and isolated.

(a) If the vane damage is not local and isolated, you must replace the vane immediately.

(3) Visually compare the damage you find on the vanes with the limits in Table 602 (Fig. 602).

TABLE 602
INSPECTION OF THE FAN EXIT VANES

Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Area A: Chord depth (axial length)	0.100 inch (2.540 mm) maximum *	No procedure is necessary, but you must examine it again in less than 50 hours and at the next "A" check for deterioration. If there is deterioration, repair the vane with a small patch in less than 50 hours.
	More than 0.100 inch (2.54 mm) in depth.*	Remove the damaged fan exit vane in less than 50 hours.

TABLE 602
INSPECTION OF THE FAN EXIT VANES

Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Area B: Chord depth (axial length)	0.100 inch (2.540 mm) maximum *	No procedure is necessary, but you must examine it again in less than 50 hours and at the next "A" check for deterioration. If there is deterioration, repair the vane with a small patch in less than 50 hours.
	Between 0.100-0.375 inch (2.5-9.5 mm) in depth.*	Repair the vane with a large patch in less than 50 hours.
	More than 0.375 inch (9.525 mm) in depth.*	Remove the damaged vane immediately.
Radial Length	More than 1.000 inch (2.540 mm) in length	Remove the damaged vane immediately.
Quantity of damage on each vane	No damage is more than 0.100 inch (2.540 mm) in depth.*	No procedure is necessary.
	4 maximum if the chord depth is 0.100 - 0.150 inch (2.54 - 3.81 mm). This counts against the 4 allowed above.	Repair the vane in less than 50 hours.
	More than one with a chord depth that is more than 0.150 inch (3.81 mm).	Remove the vane in less than 50 hours.

TABLE 602
INSPECTION OF THE FAN EXIT VANES

Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Area C for: Nicks, dents, pits, and chips	Broken composite fibers	Repair the vane with a small patch in less than 50 hours.
	More than 0.030 inch (0.762 mm) in depth	Remove or replace the vane in less than 50 hours.
	More than 0.300 inch (7.620 mm) in width or height	Remove or replace the vane in less than 50 hours.
Area D for: Damage that decreased the chord length	Chord decreased by not more than 0.150 inch (3.810 mm)	Repair the vane with a small patch in less than 50 hours.
	Chord decreased by more than 0.150 inch (3.810 mm)	Remove or replace the vane in less than 50 hours.
Delamination	More than 1.0 square inch (645. square mm) in area	Remove or replace the vane in less than 50 hours.
Delamination/ Missing Wire Mesh	Full axial width both sides up to full span.	Replace leading edge up to full span.

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TABLE 602
INSPECTION OF THE FAN EXIT VANES

Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Erosion of Leading edge (Wire mesh Configurat-ion)	Any location on leading edge up to 0.150 inch (3.81 mm) in depth and 60 percent of length of FEGV maximum.	Replace wire mesh leading edge up to full span.
		Replace with metal leading edge or wire mesh up to full span.
	Any location on leading edge beyound 0.150 inch (3.81 mm) in depth and 60 percent of length of FEGV maximum.	Replace vane.
Metal Leading Edge for dents and impact only (Visually inspect only)	Dents or other damage up to 0.200 inch (5.080 mm) in length and 0.050 inch (1.270 mm) depth and within 3.0 inches (76.200 mm) of either base (Area A).	Serviceable
	Dents beyound 0.200 inch (5.080 mm) in length and 0.050 inch (1.270 mm) depth, and located beyound 3.0 inches (76.200 mm) of either Base (Area A)	Remove the vane at next shop visit

TABLE 602
INSPECTION OF THE FAN EXIT VANES

Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Metal Leading Edge disbonded from vane (Visually inspect only)	Visual inspection shows leading edge is seperated from vane airfoil on one side only, and separation does not extend beyound 3.0 inches (76.200 mm) of either Base (Area A).	Serviceable
	Visual inspection shows leading edge is separated from vane airfoil on one side only, and separation does extend beyound 3.0 inches (76.200 mm) of either Base (Area A).	Remove the vane at next shop visit
	Visual inspections shows leading edge is separated from vane airfoil on both sides at the same location or is completely missing.	Remove vane immediately (see Note)

*NOTE: It is acceptable to continue service with leading edge missing or removed (operator's discretion). Vane will quickly erode and may not be repairable later. The same time and spacing limits apply as if the vane was not there and any vanes missing leading edges must be included in vane not there criteria.

TABLE 602 INSPECTION OF THE FAN EXIT VANES		
Examine	Damage Limits	Necessary Procedure (AMM 72-33-02/801)
Metal leading edge contains crack(s). (Visually inspect only)	Any degree of cracking whether isolated or interconnected	Remove vane immediately (See Note)
Vanes that are not there	3 vanes maximum 4-5 vanes can be gone, if no more than 3 are adjacent and there is not less than 5 vanes between each area of vanes that are gone	Install a replacement vane during the subsequent removal of the engine. Immediately remove broken pieces. Install replacement vanes in less than 50 hours. If there are more vanes gone than the limit, install replacement vanes immediately.

(4) Visually compare the damage you find on the vane platforms with the limits in Table 603 (Fig. 603).

TABLE 603 INSPECTION OF VANE PLATFORMS		
Damage	Damage Limits	Necessary Procedure
Cracks	The base platform section on one side of a crack in Area A makes a continuous surface with the section on the other side of the crack	Serviceable

TABLE 603
INSPECTION OF VANE PLATFORMS

Damage	Damage Limits	Necessary Procedure
	The base platform section on one side of a crack in Area A is 0.100 inch (2.540 mm), or more, above the section on the other side of the crack.	Serviceable
	* NOTE: If a crack in the base platform could lengthen to cause a piece to not be there, it is permitted to remove the piece.	
	A crack in the structural section of the vane base makes the vane loose more, above the section on the other side of the crack.	Repair the vane base immediately (AMM 72-33-02/801)
	15 cracks in each mold	No procedure is necessary.
	More than 15 cracks in one mold	Remove the vane within 50 hours (AMM 72-33-02/801).
	Cracks in the mold with spaces between the vane base or the vane	Remove the vane within 50 hours (AMM 72-33-02/801).
	Cracks in the mold that cause damage to the attachment holes in the vane bases	Remove the vane within 50 hours (AMM 72-33-02/801).

TABLE 603
INSPECTION OF VANE PLATFORMS

Damage	Damage Limits	Necessary Procedure
Piece or pieces not there	In Area A	Engine can continue to operate until the next scheduled maintenance visit with inspection at 2A check intervals for vane security and further damage Any amount can be missing on one single vane. A total of 5 vanes can have this condition. Any two vanes with this condition must be separated by one undamaged vane.
Piece of the inner diameter or outer diameter vane base that is not there.	In Area A In the structural section of the base which makes the vane loose.	Repair the vane or base immediately (AMM 72-33-02/801). Remove the vane within 50 hours (AMM 72-33-02/801).

* NOTE: Foam baffles under the base platform can be missing in any amount.

E. Put the Airplane back to its Usual Condition

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Close the thrust reversers (AMM 78-31-00/201).

(2) Close the core cowl panels (AMM 71-11-06/201).

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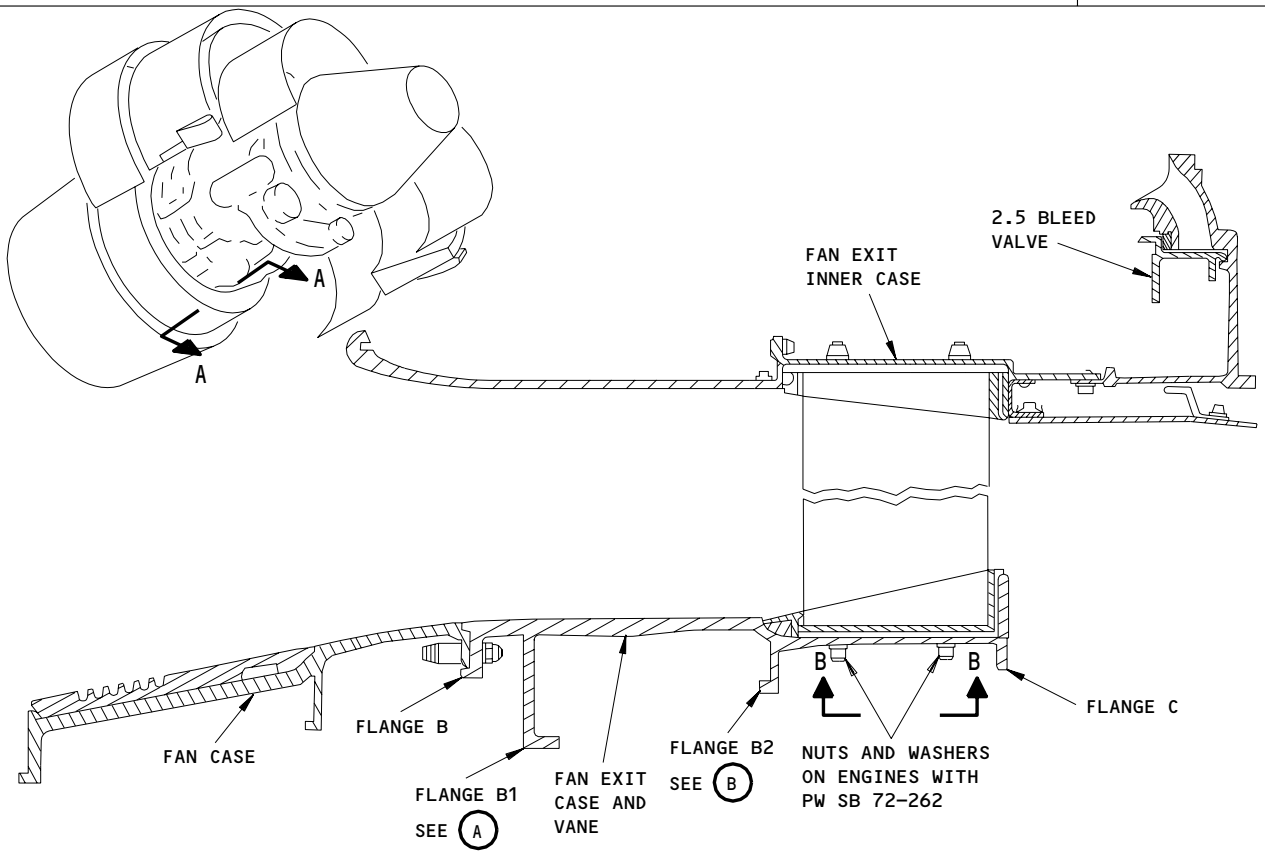
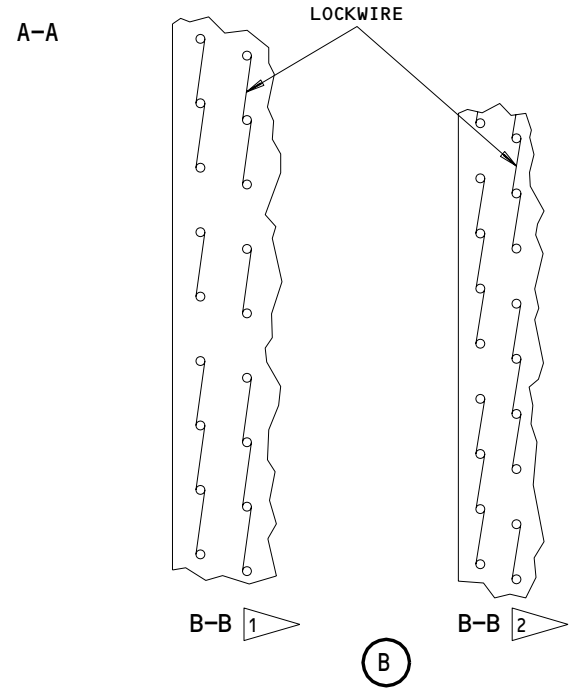
(3) Close the fan cowl panels (AMM 71-11-04/201).

(4) Do the activation procedure for the thrust reversers (AMM 78-31-00/201).

(5) Remove the DO-NOT-OPERATE tag from the ENG START switch on the P5 panel.

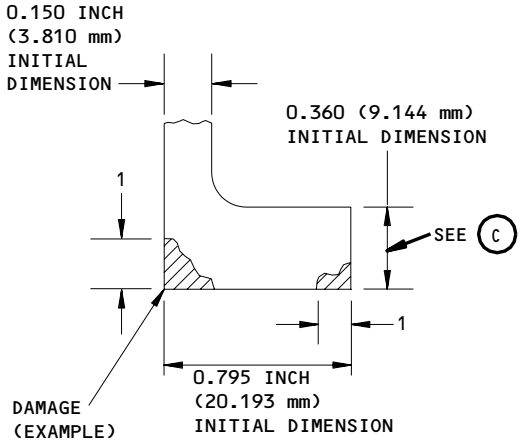




1 PERMITTED LOCKWIRE PATTERNS WITH PARTIAL INCORPORATION OF PW SB 72-262

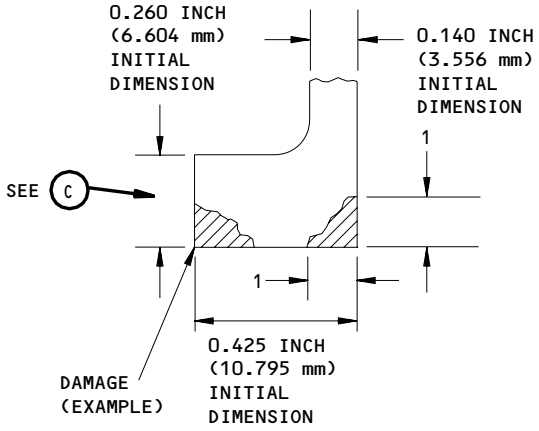
2 PERMITTED LOCKWIRE PATTERN FOR ENGINES WITHOUT PW SB 72-262

Fan Exit Case Inspection
Figure 601 (Sheet 1)



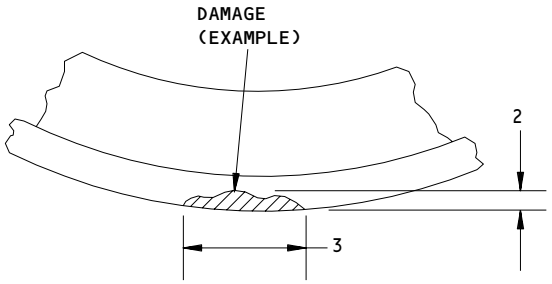
FLANGE B1

A



FLANGE B2

B

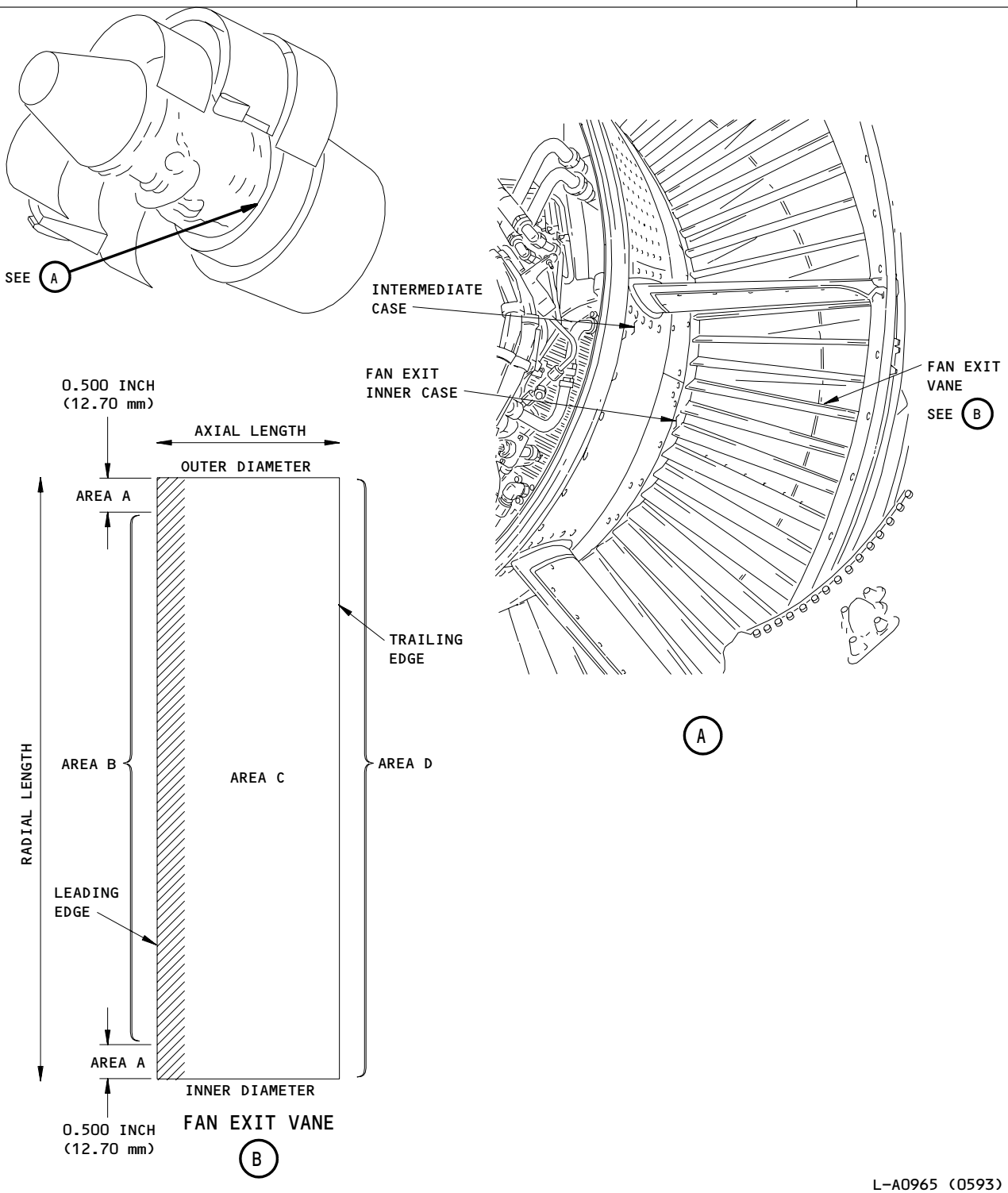


FORWARD VIEW OF FLANGE B1 OR
REAR VIEW OF FLANGE B2

C

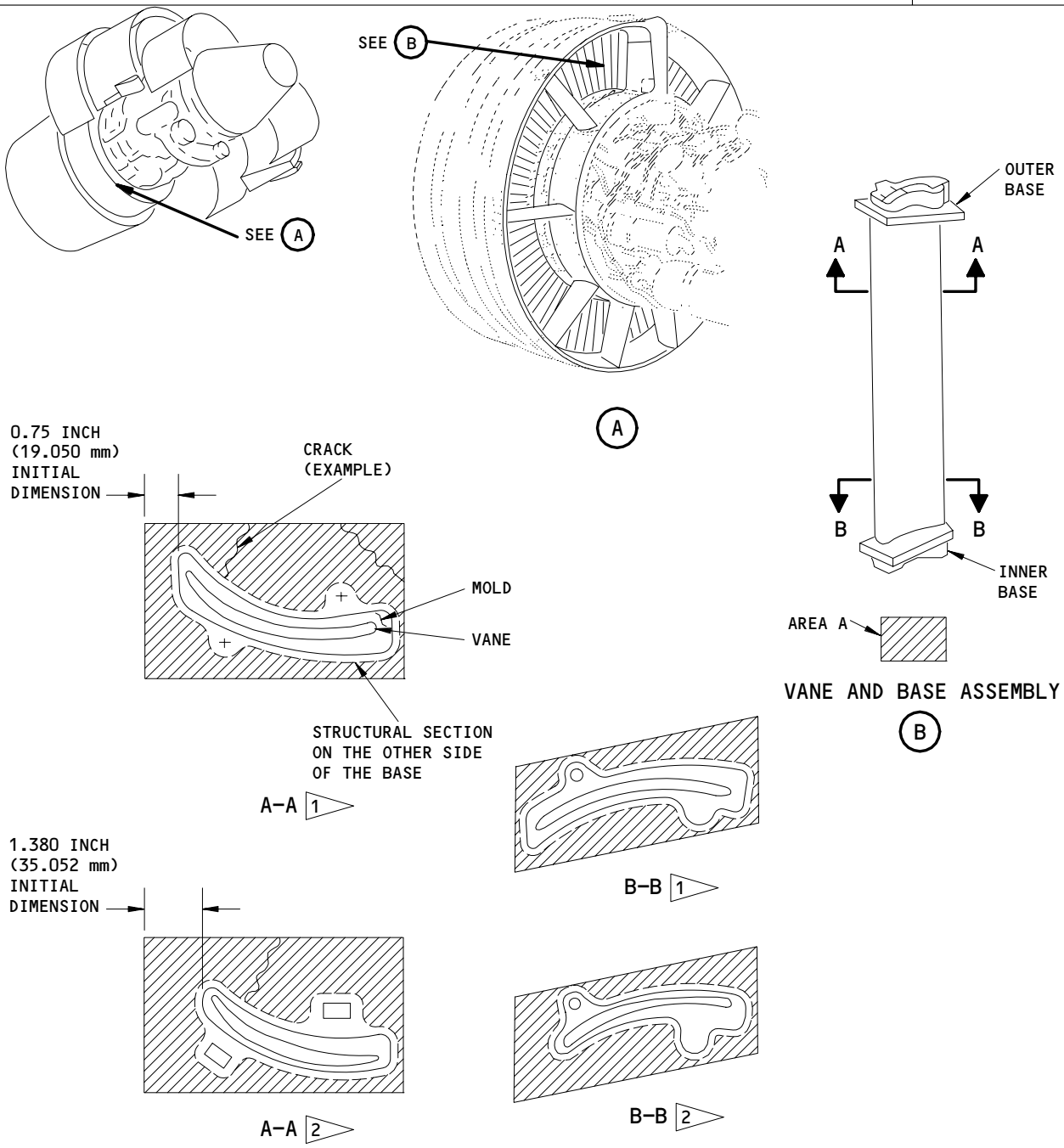
L-A7755 (0000)

Fan Exit Case Inspection
Figure 601 (Sheet 2)



L-A0965 (0593)

Inspection of the Vane Airfoils
Figure 602 (Sheet 1)



1 ENGINES WITHOUT PW SB 72-262

2 ENGINES WITH PW SB 72-262

L-A7587

Fan Exit Vane Base Inspection
Figure 603

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-407-02-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		01000 HRS	10202	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 1 FAN EXIT REAR CASE ASSEMBLY		ALL	4000

ZONES	ACCESS PANELS
411	413AL 414AR 415AL 416AR

MECH	INSP	MPD ITEM NUMBER
		N72-33-02-A

VISUALLY CHECK THE ENGINE 1 FAN EXIT REAR CASE ASSEMBLY FOR CONDITION.

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-407-02-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		01000 HRS	10202	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 2 FAN EXIT REAR CASE ASSEMBLY		ALL	4000

ZONES	ACCESS PANELS
421	423AL 424AR 425AL 426AR

MECH	INSP	MPD ITEM NUMBER
		N72-33-02-A

VISUALLY CHECK THE ENGINE 2 FAN EXIT REAR CASE ASSEMBLY FOR CONDITION.

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-407-03-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		01000 HRS	10202	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 1 FAN EXIT LINER SEGMENTS		ALL	4000

ZONES	ACCESS PANELS
411	415AL 416AR

MECH | INSP

MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 FAN EXIT LINER SEGMENTS FOR CONDITION AND SECURITY. N72-34-03-6A

1. Inner Rear Liner Segments Inspection

A. References

(1) AMM 71-11-04/201, Fan Cowl Panel

(2) AMM 71-11-06/201, Core Cowl Panel

(3) AMM 72-34-03/401, Fan Exit Liner Segments (Inner Rear)

(4) AMM 72-34-03/801, Fan Exit Liner Segments (Inner Rear)

(5) AMM 78-31-00/201, Thrust Reverser Opening

B. Do the Inspection of the Inner Rear Liner Sements.

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

(2) Open the fan cowl panel (AMM 71-11-04/201).

(3) Open the core cowl panel (AMM 71-11-06/201).

MECH | INSP

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Open the thrust reverser (AMM 78-31-00/201).

(5) Compare the damage that you find on the outer liner segments with the limits in Table 601, 602, and 603 (Fig. 601).

(a) If you find a liner segment or a fastener that is loose, make sure that the torque is not less than 15 pound-inches (1.695 newton-meters).

NOTE: ENGINES POST-PW-SB 72-107 use bolts here, and ENGINES PRE-PW-SB 72-107 use screws here.

INSPECTION FOR PARTS THAT ARE NOT THERE OR ARE LOOSE, AND FOR RUBBER SEALS
Table 601

AREA: CONDITION OBSERVED	NECESSARY PROCEDURE
Liner Segment: all or part of the liner that is not there or loose	Replace or tighten the liner as applicable within 50 hours of operation (AMM 72-34-03/401).
Screws/Bolts: One or more that is loose or not there	Replace or tighten the screws as applicable within 50 hours of operation.
Rubber Seals: Cuts or tears on the ends of the seals	Repair the rubber seal within 50 hours of operation (AMM 72-34-03/801).

(b) If the damage to the liner segment, referred to in Table 602, is less than the limits, no procedure is necessary.

MECH | INSP

INSPECTION FOR NICKS, DENTS, AND OTHER SURFACE DAMAGE
Table 602

CONDITION OBSERVED	DAMAGE LIMITS	NECESSARY PROCEDURE
Nicks and Gouges	More than 1.000 inch (25.400 mm) in width or length, or more than 0.030 inch (0.762 mm) in depth, or less than 2.000 inches (50.80 mm) apart from other damage, or there are more than five (5) nicks and gouges.	Replace before the subsequent flight.
Dents with Rounded Bottoms	More than 0.030 inch (0.762 mm) in depth or on more than 10% of the surface area	Replace Within 50 hours
Cracks	More than 1.000 inch (25.400 mm) in length or less than 0.500 inch (12.700 mm) from the center of an attachment rivet screw or bolt	Replace Within 50 hours
Areas of broken or fuzzy stray fibers	Between 1.000 and 2.500 inches (25 and 63.5 mm) in width or length, or more than 0.030 inch (0.762 mm) in depth, or less than 2.000 inches (50.800 mm) from other damage	Replace Within 50 hours
	More than 2.500 inches (63.500 mm) in width or length	Replace Immediately
Holes or Punctures	None Permitted.	Replace in 50 hours
No Bond of a Wire Cloth Patch	More than 0.500 inch (12.700 mm) in length or width.	Replace in 50 hours
Leading Edge Erosion	More than 0.500 inch (12.700 mm) in length or width (of a dull or rough surface finish, visible fibers)	Replace in 50 hours

INSPECTION FOR DELAMINATION Table 603			
DELAMINATION DIMENSION	EXAMINE AFTER EACH 50 HOURS	REPLACE WITHIN 50 HOURS	REPLACE BEFORE YOU OPERATE THE ENGINE
Width or Length	Not more than 1.000 inch (25.400 mm)	Between 1.000-2.500 inches (25-64 mm)	More than 2.500 inches (63.500 mm)
Depth	Mot more than 0.030 inch (0.762 mm)	More than 0.030 inch (0.762 mm)	-----
Distance from other damage	More than 2.000 inches (50.800 mm)	Less than 2.000 inches (50.800 mm)	-----

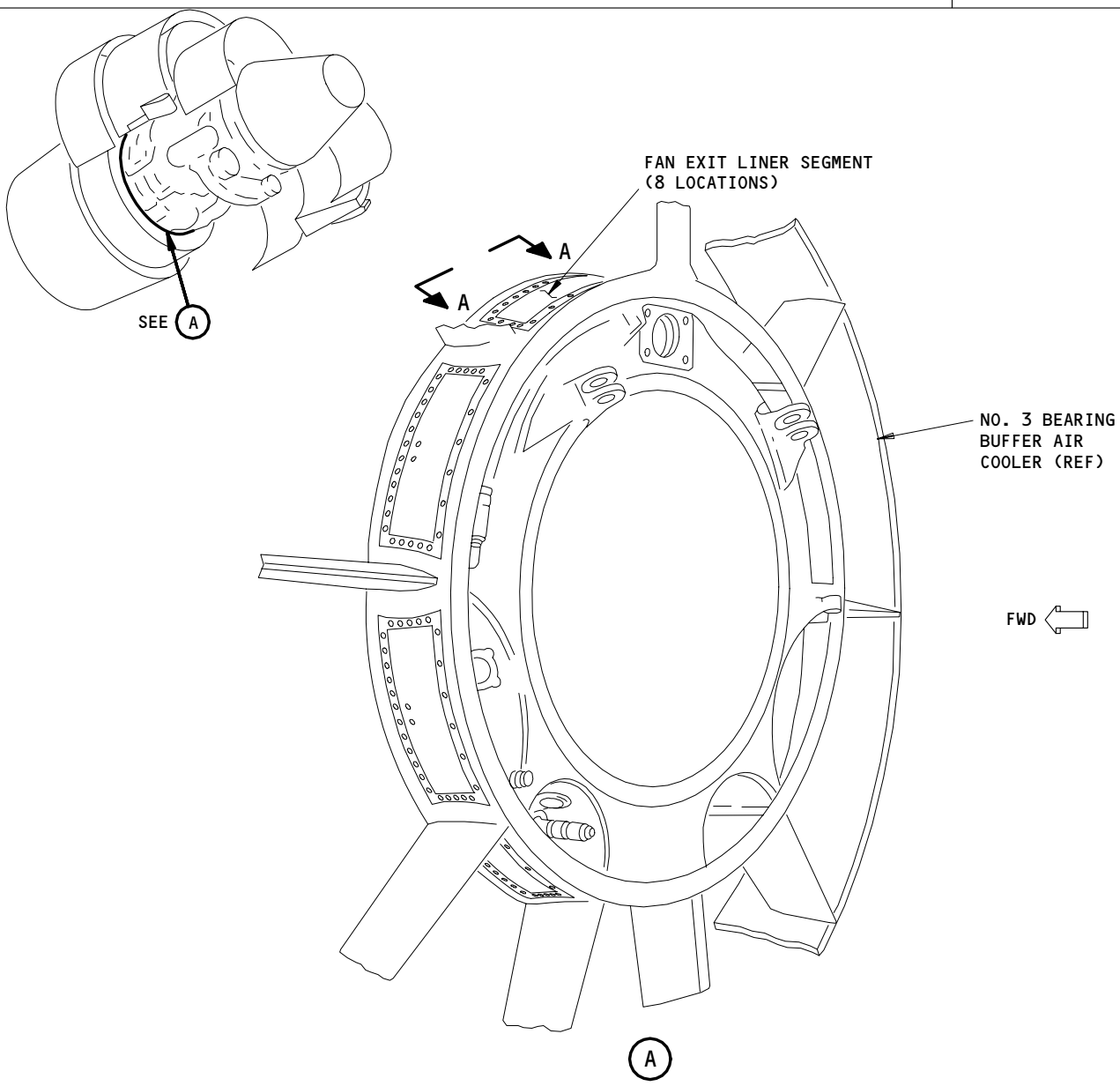
WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(6) Close the thrust reverser (AMM 78-31-00/201).

(7) Close the core cowl panel (AMM 71-11-06/201).

(8) Close the fan cowl panel (AMM 71-11-04/201).

(9) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).



Fan Exit Liner Segment (Inner Rear) Inspection
Figure 601

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-407-03-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		01000 HRS	10202	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 2 FAN EXIT LINER SEGMENTS		ALL	4000

ZONES	ACCESS PANELS
421	425AL 426AR

MECH | INSP

MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 FAN EXIT LINER SEGMENTS FOR CONDITION AND SECURITY. N72-34-03-6A

1. Inner Rear Liner Segments Inspection

A. References

(1) AMM 71-11-04/201, Fan Cowl Panel

(2) AMM 71-11-06/201, Core Cowl Panel

(3) AMM 72-34-03/401, Fan Exit Liner Segments (Inner Rear)

(4) AMM 72-34-03/801, Fan Exit Liner Segments (Inner Rear)

(5) AMM 78-31-00/201, Thrust Reverser Opening

B. Do the Inspection of the Inner Rear Liner Sements.

WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

(2) Open the fan cowl panel (AMM 71-11-04/201).

(3) Open the core cowl panel (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Open the thrust reverser (AMM 78-31-00/201).

(5) Compare the damage that you find on the outer liner segments with the limits in Table 601, 602, and 603 (Fig. 601).

(a) If you find a liner segment or a fastener that is loose, make sure that the torque is not less than 15 pound-inches (1.695 newton-meters).

NOTE: ENGINES POST-PW-SB 72-107 use bolts here, and ENGINES PRE-PW-SB 72-107 use screws here.

INSPECTION FOR PARTS THAT ARE NOT THERE OR ARE LOOSE, AND FOR RUBBER SEALS
Table 601

AREA: CONDITION OBSERVED	NECESSARY PROCEDURE
Liner Segment: all or part of the liner that is not there or loose	Replace or tighten the liner as applicable within 50 hours of operation (AMM 72-34-03/401).
Screws/Bolts: One or more that is loose or not there	Replace or tighten the screws as applicable within 50 hours of operation.
Rubber Seals: Cuts or tears on the ends of the seals	Repair the rubber seal within 50 hours of operation (AMM 72-34-03/801).

(b) If the damage to the liner segment, referred to in Table 602, is less than the limits, no procedure is necessary.

MECH | INSP

INSPECTION FOR NICKS, DENTS, AND OTHER SURFACE DAMAGE
Table 602

CONDITION OBSERVED	DAMAGE LIMITS	NECESSARY PROCEDURE
Nicks and Gouges	More than 1.000 inch (25.400 mm) in width or length, or more than 0.030 inch (0.762 mm) in depth, or less than 2.000 inches (50.80 mm) apart from other damage, or there are more than five (5) nicks and gouges.	Replace before the subsequent flight.
Dents with Rounded Bottoms	More than 0.030 inch (0.762 mm) in depth or on more than 10% of the surface area	Replace Within 50 hours
Cracks	More than 1.000 inch (25.400 mm) in length or less than 0.500 inch (12.700 mm) from the center of an attachment rivet screw or bolt	Replace Within 50 hours
Areas of broken or fuzzy stray fibers	Between 1.000 and 2.500 inches (25 and 63.5 mm) in width or length, or more than 0.030 inch (0.762 mm) in depth, or less than 2.000 inches (50.800 mm) from other damage	Replace Within 50 hours
	More than 2.500 inches (63.500 mm) in width or length	Replace Immediately
Holes or Punctures	None Permitted.	Replace in 50 hours
No Bond of a Wire Cloth Patch	More than 0.500 inch (12.700 mm) in length or width.	Replace in 50 hours
Leading Edge Erosion	More than 0.500 inch (12.700 mm) in length or width (of a dull or rough surface finish, visible fibers)	Replace in 50 hours

INSPECTION FOR DELAMINATION Table 603			
DELAMINATION DIMENSION	EXAMINE AFTER EACH 50 HOURS	REPLACE WITHIN 50 HOURS	REPLACE BEFORE YOU OPERATE THE ENGINE
Width or Length	Not more than 1.000 inch (25.400 mm)	Between 1.000-2.500 inches (25-64 mm)	More than 2.500 inches (63.500 mm)
Depth	Mot more than 0.030 inch (0.762 mm)	More than 0.030 inch (0.762 mm)	-----
Distance from other damage	More than 2.000 inches (50.800 mm)	Less than 2.000 inches (50.800 mm)	-----

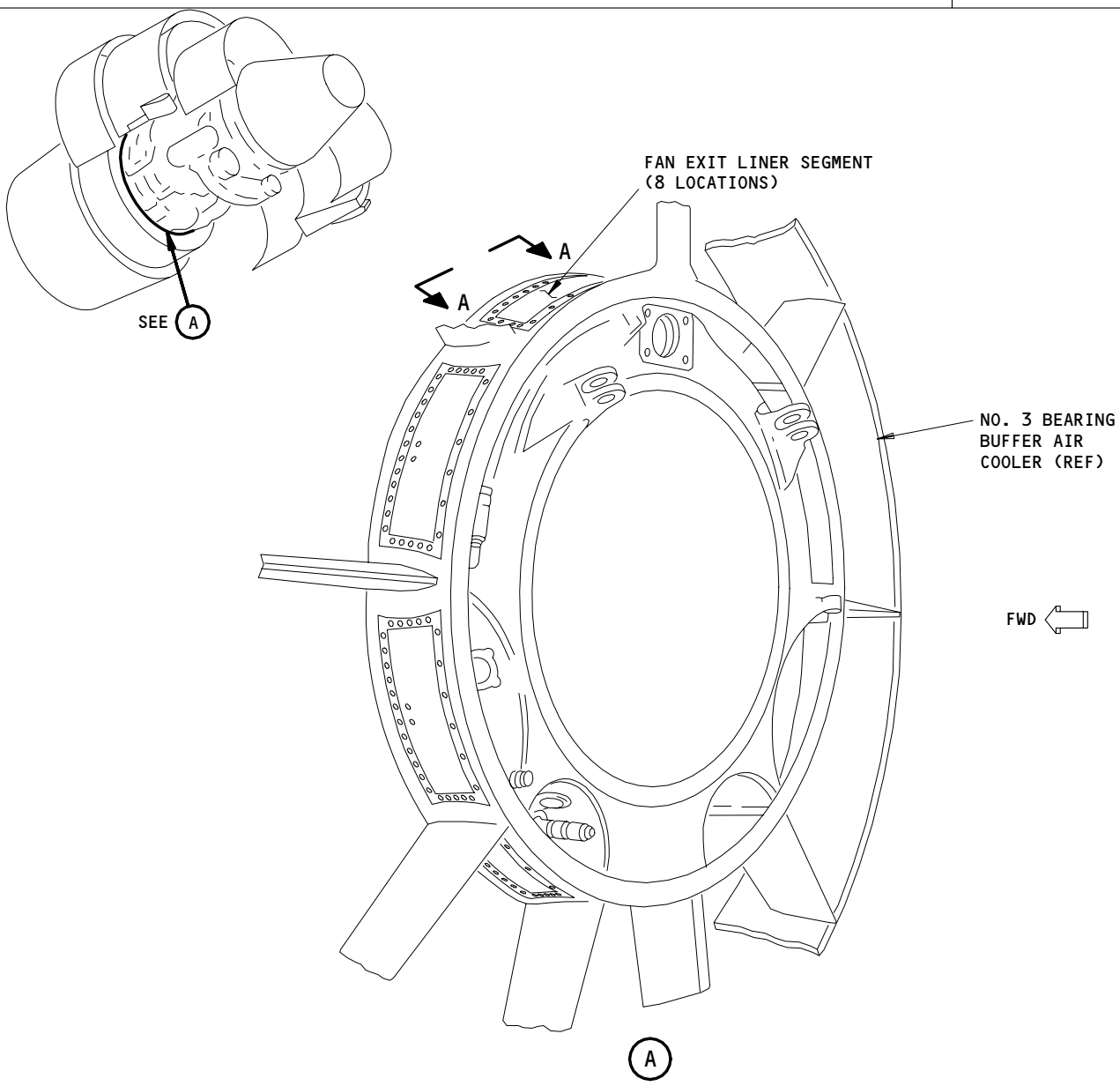
WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(6) Close the thrust reverser (AMM 78-31-00/201).

(7) Close the core cowl panel (AMM 71-11-06/201).

(8) Close the fan cowl panel (AMM 71-11-04/201).

(9) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).



Fan Exit Liner Segment (Inner Rear) Inspection
Figure 601

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-409
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
SHOPS			LIFE LMT NOTE	99XXX	005	AUG 22/99

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
REPLACE	HPC COMPRESSOR COMPONENTS		ALL	4000

ZONES	ACCESS PANELS
411 421	

MECH	INSP	MPD ITEM NUMBER

DISCARD THE HPC COMPRESSOR FRONT HUB, FIFTH STAGE DISC, BOTH HPC DRUM ROTORS AND THE ROTATING AIRSEALS. N72-30-00-C

INTERVAL NOTE: AT MANUFACTURER'S LIFE LIMIT (SEE ENGINE MANUAL, CHAPTER 5).

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-410-C1-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		00250 CYC	10101	005	AUG 22/09

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
BORESCOPE	COMBUSTION LINER/HP AND LP TURBINES		ALL	4000

ZONES	ACCESS PANELS
411	417AL 418AR

MECH	INSP	MPD ITEM NUMBER

BORESCOPE CHECK THE ENGINE 1 INNER AND OUTER COMBUSTION CHAMBER ASSEMBLIES AND FIRST STAGE TURBINE NOZZLE GUIDE VANES (CLUSTERS). 72-00-00-6A N72-00-00-6A N72-00-00-6B N72-00-00-6C

BORESCOPE CHECK THE ENGINE 1 STAGE 1 AND STAGE 2 HIGH PRESSURE TURBINE BLADES. 72-00-00-6B

BORESCOPE CHECK THE ENGINE 1 STAGE 3 LOW PRESSURE TURBINE NOZZLE GUIDE VANES. 72-00-00-6C

NOTE: THE FIELD-OF-VIEW PROVIDED BY INSPECTION PORT AP10 DOES NOT ALLOW A FULL VIEW OF ALL THIRD STAGE NOZZLE GUIDE VANES. HOWEVER, THOSE VANES WHICH CAN BE VIEWED ARE SUFFICIENT TO EVALUATE THE CONDITION OF THE THIRD STAGE NOZZLE GUIDE VANES.

ENGINE GASPATH - INSPECTION/CHECK

1. Prepare for the Borescope Inspection

A. General

(1) This procedure gives the equipment and steps that are necessary to prepare for the borescope inspections.

(2) Refer to Fig. 605A for installation data on each borescope access port.

B. Equipment

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(1) Borescope Inspection Equipment - Specification CTE 6181, Support Equipment Engineering, Pratt & Whitney Commercial Products Division, 400 Main Street, East Hartford, CT 06108, USA MS 11803

NOTE: Specification CTE 6181 gives the equipment and related hardware, such as power source, light cables, adapter, that is required during borescope inspections. This specification sets the quality and functional standards for this equipment. This borescope equipment is recommended:

(a) Low magnification rigid borescope. . . . . AP2-7, 9 (optional for THRU FAN)
(0.270 inch/6.8 mm barrel dia max)

(b) High magnification rigid borescope. AP8, 11
(0.444 inch/11.3 mm barrel dia max)

(c) Flexible borescope . . . . AP-1, THRU FAN (optional for AP2-7)
(0.270 inch/6.8 mm cable dia max)

(2) Optional borescope equipment and sizes that make the operation of the borescope better and easier are also shown in CTE 6181. This equipment includes clamps that hold the borescope in position and optical video equipment. This video equipment helps you see and make a videotape record of the borescope procedure for a second, more full, examination.

(a) Borescope equipment is available with rigid or flexible probes that have different operation lengths and fields of vision. You can use closed circuit television with some borescopes.

(b) The equipment that follows is from Olympus Corp., IFD 4 Nevada Drive, Lake Success, NY 11042, and agrees with specification CTE 7181. You can get equivalent equipment from American Cystoscope Makers Inc., Industrial Division, 300 Stillwater Ave., Stamford, CT 06902, or Richard Wolf Medical Instruments Corp., 7046 Lydon Ave., Rosemont, IL 60018.

1) Rigid Borescope - Olympus Model C080-048-090-50, 8 mm diameter, 48 cm operation length, lateral view, 50-degree field of view

2) Rigid Borescope - Olympus Model C100-037-090-50, 10 mm diameter, 37 cm operation length, lateral view, 50-degree field of view

3) Eyepiece, right angle adapter - Olympus Model KMR-90/4

4) Flexible Borescope - Olympus Model IF8D3-15, 8 mm diameter, 125 cm operation length, direct view, 40-degree field of view

5) Distal right angle adapter - Olympus Model IF8D3-A40S, 40-degree field of view

6) Light Source - Olympus Model ILK-4, 150 Watt Halogen

7) Light Cable - Olympus Model 2950B High Intensity Light Cable, 6 mm diameter, 72 inch length

8) Flexible Borescope - Olympus Model PF27-7, 6.8 mm (0.27 inch) diameter, 130 cm operation length, direct view, 70-degree field of view, Articulating Tip

9) Flexible Borescope - Olympus Model IF6D3-20, 6 mm diameter, 180 cm operation length, direct view, 65-degree field of view, Articulating Tip

(c) This television system is available from Westinghouse Electronic Tube Division, P.O. Box 284, Elmira, New York 14902

1) Mobile Video Inspection Equipment - Model No. M616W, closed circuit television camera system.

NOTE: This video inspection equipment is used with Richard Wolf Corp. Borescope Models FIB 750, and FIB 760.

C. Reference

(1) AMM 71-11-04/201, Fan Cowl Panels

(2) AMM 71-11-06/201, Core Cowl Panels

(3) AMM 78-31-00/201, Thrust Reverser System

D. Access

(1) Location Zones
411 No. 1 Power Plant
421 No. 2 Power Plant

E. Prepare for the Borescope Inspection.

(1) Get the applicable borescope equipment.

(2) For the left engine, open this circuit breaker on the overhead circuit breaker panel, P11, and attach a DO-NOT-CLOSE tag:

(a) 11D19, ENGINE START CONT L

(3) For the right engine, open this circuit breaker on the overhead circuit breaker panel, P11, and attach a DO-NOT-CLOSE tag:

MECH | INSP

(a) 11D20, ENGINE START CONT R

(4) Open the fan cowl panel (AMM 71-11-04/201).

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

(6) Open the core cowl panel (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(7) Open the thrust reverser (AMM 78-31-00/201).

2. Combustion Chamber Inspection

A. General

(1) This inspection is the visual check of the Combustion Chamber: the inner and outer combustion chamber assemblies, the bulkhead, and the heatshield of the fuel injector guide.

(2) The limits given in this section will help you know if the engine can continue to operate or if you must remove and repair it.

B. Equipment

(1) AP-8 Gasket - PWA 673049 (6 are necessary)

C. Consumable Materials

(1) D00137 Engine Oil - PWA 521B

(2) D00244 Antiseize compound, high temperature - Silver Goop

D. Do the Combustion Chamber Inspection

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CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.

(1) Do this procedure: Prepare for the Borescope Inspection.

(2) Remove the plugs from the AP-8 access ports of the combustion chamber; refer to Fig. 605 and 611 for access port locations and borescope data.

NOTE: Six AP-8 plugs are on the diffuser case at 45, 128, 172, 225, 277, and 338 degrees clockwise from top center of engine when you look forward.

WARNING: DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND CIRCUMFERENTIAL CUT HOLES, FRAYING OR BROKEN HOLES IN THE EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE CONDITIONS CAN CAUSE INJURY TO PERSONS.

CAUTION: MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW 150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

(3) Put the borescope through each access port to examine the condition of the combustion chamber.

NOTE: The borescope goes into the combustion chamber through the dilution air holes.

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(4) Compare the damage as identified in Figs. 612, 613, and 614 with the continue-in-service limits shown in Table 602A and Table 602B.

NOTE: The frequency of the regular time inspection that is referred to in the tables is from our Maintenance Planning Document. The frequency of the decreased time inspection is two times the frequency of the regular time inspection. In other words, the interval between decreased time inspections is half the interval of regular time inspections.

NOTE: The maximum limits for the regular time and decreased time inspections were calculated to have the qualities that follow:
- During usual conditions of operation, permitted damage will not become unsatisfactory before the time for the subsequent applicable inspection.
- Usually, higher damage limits are permitted for the decreased time inspection because that inspection is done more frequently.
- Damage and deterioration in some areas change the performance of the engine very quickly, which makes a higher limit (for the decreased time inspection) not possible. For damage in these areas, the limits for the decreased and regular time inspections are equal.

(a) These conditions of damage occur in the inner and outer combustion chamber assembly:

1) The conditions that follow are examples of burned or released material:

a) Discolored or distorted areas on the louver

b) Areas where louver lip material is gone because of too much heat.

2) An axial series of damaged louvers, in which each louver has burned or released material, is an example of a burned stripe.

3) A hole is because of too much heat and goes fully through the combustion chamber wall; holes frequently occur in burned stripes.

(b) Refer to Figs. 615, 616, and 617 to help you keep a record of the damage in the combustion chamber assembly.

NOTE: You can write on copies of these figures to keep a record of the damage.

(c) If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.

Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Open Holes that are Burned Through	Four open holes in each assembly.	Six open holes in each assembly.
	The maximum diameter of each hole is 0.500 inch (12.700 mm) 0.19 square inch (123 square mm). There must be at least 6 inches (152.400 mm) of material without damage, between each hole.	
Burned Marks, Distortion, Louver Lip Material that is gone, or Burned Stripes	All quantities of burned marks, distortion, or louver lip material that is gone Damage that is on no more than three adjacent louvers. This is the indication of the start of a burned stripe.	Axial burned stripes that are on more than three adjacent louvers. Refer to the applicable condition found in this table for limits for opened hole size, crack length, and the connection of cracks.
Burned Areas, Areas where Material is Gone, or a Deterioration of the Surface Layer.	All quantities. NOTE: If you find much damage or many areas where the material is gone, examine the turbine airfoils for damage. This is most important for the last louver.	

Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Nicks in the Surface Layer, Thermal Barrier Ceramic Layer that is Gone.	All quantities. NOTE: When the surface layer is gone, the rate of the Combustion Chamber deterioration will increase.	
Louver Gap Decrease and and Burned Marks	All quantities. NOTE: Too much of a Gap decrease will increase the rate of downstream deterioration in the Combustion Chamber.	
Bends, Buckles, or Distortion on the Louvers	All quantities.	

Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	NOTE: For axial cracks that enter a combustor, dilution, or ignition hole, the diameter of the manufactured hole does not need to be added to determine the crack length until the crack is seen exiting from the opposite side of the hole.	
Axial Cracks that are confined to one louver	All cracks that are not more than 0.75 inch (19.050 mm) in length. Cracks that go completely across the No.9 louver of the Outer Burner Lining, if there is not less than 2.5 inches (63.5 mm) circumferentially between each one. Cracks can completely traverse one louver, but must be separated circumferentially by 6.0 inches (152.40 mm) minimum.	Maximum of 2 cracks every 6.0 inch (152.040 mm) of louver material. Cracks must be separated circumferentially by 0.75 inch (19.05 mm). Maximum of 3 cracks every 6.0 inches (152.40 mm) of louver material. Cracks must be separated circumferentially by 1.5 inches (38.10 mm).

Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	NOTE: If these limits are exceeded, contact Pratt & Whitney for recommendation. Cracks can completely traverse on Outer Burner Lining No. 9 (rear most) louver, but must be separated circumferentially by 2.5 inches (63.5 mm) minimum. On the Outer Burner Lining (rear most), the minimum separation of cracks must be 2.5 inches (63.5 mm). NOTE: An individual crack is a crack only to one louver.	

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Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Continuous Axial Cracks that go completely through one or more louvers	Axial cracks which go completely through more than one louver must be inspected with the decreased time inspection.	Axial cracks which go completely through more than three adjacent louvers are not permitted.
	If you can do an inspection of the outside diameter (OD) (cold side) of the louver, and the cracks do not go through the edge which overlaps the adjacent louver, the limits for axial cracks that are confined to one louver are applicable. If you cannot do an inspection of the OD (cold side) of the louver, the limits for continuous axial cracks that go through one or more louvers are applicable. NOTE: If the outer (cold side) inspection shows that the cracks do not go through the louver knuckle area, the cracks are classified as individual axial cracks. Use the individual axial crack limits. Without the outer side (cold side) inspection, the cracks must be classified as continous cracks. Examine the continuous axial cracks with decreased distance as follows: 1. Two louver crack, if the measured crack width on each of the adjacent louver is more than 0.060 inch (1.524 mm) wide and/or louver wall deformation or surface mismatch is more than 0.060 inch (1.524 mm). Individual crack separation limits apply for two louver cracks. 2. Three louver crack, if the measured crack width on each of the three adjacent louvers is more than 0.060 inch (1.524 mm) wide and/or louver wall deformation, or surface mismatch is more than 0.060 inch (1.524 mm). Three louver cracks must be apart circumferentially by 20.0 inches (508.0 mm) minimum. 3. Four louver crack, if the measured crack width on each of the three adjacent louvers is more than 0.060 inch (1.524 mm) wide but less than 0.150 inch (3.810 mm), and/or louver wall deformation surface mismatch is more than 0.060 inch (1.524 mm) but less than 0.150 inch (3.810 mm). Engine must be removed off from the wing within 40 hours.	

Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	4. More than three louver crack, engine must be removed immediately if the crack is greater than 0.150 inch (3.810 mm) wide, and/or louver wall deformation or surface mismatch is greater than 0.150 inch (3.810 mm). NOTE: Use the hot side inspection only if the cold side inspection is not easy to access. This inspection is used to find if a knuckle between two louvers is cracked by looking through a borescope at the inner (hot side) surface of the burner rather than the outer (cold side) surface. To use the inner surface inspection method, all cracked surfaces in the continuous axial crack must be inspected for crack width. If all louver cracks are less than 0.060 inch (1.524 mm), it must be classified as individual cracks. If one after the other have crack width more than 0.060 inch (1.524 mm), it should be classified as a three louver crack. Cracks are classified as an individual axial cracks, if they do not go through the louver knuckle area. An outer (cold side) inspection is an optional to check, if the cracks go through the louver knuckle area. If the outer (cold side) inspection shows that the cracks do not go through the louver knuckle area, then the cracks are classified as individual axial cracks. NOTE: As a burn streak becomes longer, the louver metal can burn, twist and fall away from the surface of the louver. This can cause axial cracks on one louver to continue to burn onto the adjacent louvers, but they are not always easily seen. That is why it is best to do an OD (cold side) inspection, if you can.	

Table 602A		
CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Circumferen-tial Cracks	Only ones in the lip area are permitted. The maximum length for the lip cracks is 2.0 inches (50.800 mm).	
Connection of Axial and Circumferen-tial Cracks	The only ones permitted are in the lip area. Louver lip material that is gone because of the connection of axial and cicumferential cracks is permitted. The maximum length of circumferential crack in lip area is 2 inches (50.8 mm).	
Connection of Axial Cracks and Burned Holes	Refer to the limits for Burn-Through (Open Holes) and Axial Cracks. Include width of burn hole as part of overall crack length.	

Table 602B		
CONDITION FOUND	COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION

Table 602B

CONDITION FOUND	COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Cracks in the Heatshield Face	All quantities of cracks that are not more than 0.25 inch (6.350 mm) in length are permitted. Cracks that go through other cracks are not permitted.	
	No more than two cracks that are longer than 0.25 inch (6.350 mm) are permitted. Two cracks on each face are permitted to go across each face, but must be apart by at least 45°.	No more than four cracks that are longer that 0.25 inch (6.350 mm) are permitted. Four cracks on each face are permitted to go across each face, but must be apart by at least 30°.
Erosion of the Inner Heatshield Face (Material that is Gone)	All quantities of erosion of the Inner Heatshield Face are permitted. But, the impingment holes must not be open to view from the rear.	All quantities of erosion of the Inner Heatshield Face are permitted. But, no more than four impingment holes on each Heatshield are permitted to be open to view from the rear.
Erosion of the Outer Heatshield Face (Material that is Gone)	Outer Heatshield Face Erosion must not extend more than 0.200 inch (5.080 mm) from the perimeter of the Outer Heatshield Face.	Erosion which extends from the perimeter of the Outer Heatshield Face must be more than 0.025 inch (0.635 mm) away from the Inner Heatshield Face
Burned Marks and Distortion in the Heatshield Face	Heatshield burned marks and distortion are permitted if the Heatshield face erosion and cracks are in the limits. The damage that results to the Bulkhead must not be worse than the given limits.	
Heatshield Surface Layer that is Gone	All quantities. NOTE: When the surface layer is gone, the rate of the Heatshield deterioration will increase.	

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Table 602B

CONDITION FOUND	COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Fuel Injector Endcap Segments	All quantities of Cracks or endcap segments that are gone are permitted. If pieces of the endcap segments are not there, examine the 1st- and 2nd-stage HPT blades for FOD.	
Radial Cracks in the Fuel Injector End Cap/Tip Heatshield	All quantities are permitted. See Figure 614.	
Circumferen-tial Cracks along the OD of the Fuel Injector End Cap/Tip Heatshield	All quantities are permitted. See Figure 614.	
End Cap Material Liberation of the Fuel Injector End Cap/Tip Heatshield	All quantities are permitted. See Figure 614. NOTE: Liberation is segments broken away.	
Burned Marks, Erosion, Distortion, or Holes in the Bulkhead	None are permitted. IMMEDIATELY REMOVE THE ENGINE	

Table 602B		
	COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS	
CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Radial or Circumferential Bulkhead Cracks	Individual radial or circumferential cracks that are less than 0.50 inch (12.7 mm) in length are permitted.	All quantities that are less than 0.50 inch (12.700 mm) in length are permitted. Cracks must be separated circumferentially by 6.00 inches (152.40 mm) of sound material.

(5) Install the access port plugs AP-8 (Fig. 605A):

(a) Apply some Silver Goop to the plug threads.

(b) Install the plugs with new AP-8 Gaskets.

(c) Tighten the AP-8 plugs to 40-50 pound-inches (4.519-5.649 newton-meter).

(d) Install lockwire on the AP-8 plug.

(6) Do this procedure: Put the Airplane Back to its Usual Condition.

3. HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

A. Equipment

(1) AP-8 Gasket - PWA 673049 (6 are necessary)

(2) AP-9 Washer - PWA 584977

(3) AP-10 Gasket - PWA ST1146-08

(4) AP-11 Gasket - PWA ST1142-012

(5) Puller - PWA 86081 (For removal of the AP-10 Plug Assembly)

(6) Packing - Preform AS3209-121

(7) Guide Tube - PWA 86411, AP-8 Port (for the flexible borescope)

B. Consumable Materials

(1) D50124 Anti-seize paste (P06-054)

(2) B00299 Petroleum Solvent P-D-680, Type I

(3) D00244 Antiseize compound, high temperature - Silver Goop

C. Do the HPT Blade and Vane Inspection.

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.

(1) Do this procedure: Prepare for the Borescope Inspection.

(2) Remove the plugs from the access ports AP-8 and AP-9 of the combustion chamber; refer to Fig. 605 and 611 for the access port locations and borescope data.

NOTE: The six AP-8 plugs are found on the diffuser case at 45, 128, 172, 225, 277, and 338 degrees clockwise from the top center of the engine from the rear view.

(a) Measure the shaft diameter of the AP-9 borescope plug.

(b) If the minimum dimension of the shaft diameter is less than 0.100 inch (2.54 mm), you must replace the AP-9 borescope plug.

(3) Do the steps that follow to install the PWA Guide Tube:

(a) Put the PWA 86411 Guide Tube through the diffuser case access port at the AP-8 location with the tip pointed forward (in the direction of the front of the engine).

(b) Turn and adjust the tube until the flexible borescope, when it is installed, will point in the direction of the 1st-stage NGV (nozzle guide vanes).

(c) Lock the Guide Tube in the correct position with the compression nut.

(4) Remove the plugs from the access ports AP-10 of the HPT LPT transition duct, and the optional AP-11 for the HPT; refer to Fig. 605 and Fig. 618 for the access port locations and borescope data.

(a) Remove the two bolts which attach the AP-10 plug assembly to the case (Fig. 618).

(b) Use a PWA 86081 Puller to remove, as an assembly, the AP-10 plug, the plug stop, the spring washer, and the cotter pin.

NOTE: Do not remove the cotter pin.

(c) Discard the gasket.

(d) ENGINES WITH BORESCOPE PLUG AP-11 (POST-PW-SB 72-157); remove the borescope plug and gasket from the No. 3 TVBCA (turbine vane cooling air) duct AP-11 as follows:

1) Remove the bolts that attach the borescope plug to the aft elbow of the No. 3 TVBCA duct.

2) Remove the plug with two jackscrews, if it is necessary.

3) Discard the packing.

WARNING: DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND CIRCUMFERENTIAL CUT HOLES, FRAYING, OR BROKEN HOLES IN THE EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE CONDITIONS CAN CAUSE INJURY TO PERSONS.

CAUTION: MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW 150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

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(5) Put the borescope through each access port to examine the condition of the HPT blades and vanes.

NOTE: It is possible that you will find local cracks and spalling on the HPT duct segments during the borescope inspection. These local cracks and spalling are permitted, if the engine is within EGT limits.

(6) Compare the damage as identified in Figs. 619, 620, and 621 with the continue-in-service limits shown in Tables 603, 604 and 605.

NOTE: The frequency of the regular time inspection that is referred to in the tables is from our Maintenance Planning Document. The frequency of the decreased time inspection is two times the frequency of the regular time inspection. In other words, the interval between decreased time inspections is half the interval of regular time inspections.

NOTE: The maximum limits for the regular time and decreased time inspections were calculated to have the qualities that follow:
- During usual conditions of operation, permitted damage will not become unsatisfactory before the time for the subsequent applicable inspection.
- Usually, higher damage limits are permitted for the decreased time inspection because that inspection is done more frequently.
- Damage and deterioration in some areas change the performance of the engine very quickly, which makes a higher limit (for the decreased time inspection) not possible. For damage in these areas, the limits for the decreased and regular time inspections are equal.

(a) Use these limits when you examine the 1st-stage HPT vanes:

1) If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.

2) If these conditions will quickly occur, immediately remove the engine: part failure, or areas where material will break off.

1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Nicks and Dents	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms	Nicks and rounded bottom dents that are not more than 0.125 inch (3.175 mm) in length or diameter. NOTE: If the view angle is such that depth can be determined, the maximum nick and round bottom dent depth is 0.0312 inch (0.792 mm).	
	Trailing Edge	No more than two nicks or dents that are apart by at least 0.750 inch (19.050 mm). Five Vanes Maximum on each engine. If more than the above interval inspection limits.	 Remove engine in 5 cycles or less.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Damaged or Missing Thermal Barrier Coating	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms, Trailing Edge	No limit on the quantity of chipped coating, coating loss, checking, crazed or cracked thermal barrier coating. NOTE: If a large quantity of thermal barrier coating is missing, (gone), and the vane is operated for a long time, it is possible that the vane cannot be repaired at overhaul. The vane base metal can become burned and eroded.	
Burned Areas, Erosion	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms, Trailing Edge	No limit on the quantity of burning and erosion as long as it is not burned completely through the wall.	
Material Break-through or Burn-through	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms	One material breakthrough or burnthrough with an open area (material that is not there) up to but not more than 0.157 inch (3.988 mm) diameter or 0.019 sq-in. (12.258 sq-mm).	

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		One material breakthrough or burnthrough and with an open area (material that is not there) more than 0.157 inch (3.988 mm) but less than 0.300 inch (7.620 mm) diameter or up to 0.070 sq-in. (45.161 sq-mm) maximum.	Permitted for 300 cycle reduced inspection interval.
		A maximum of five vanes for each engine with one material breakthrough or burnthrough, and more than 0.300 inch (7.620 mm) but less than 0.500 inch (12.700 mm) diameter or 0.196 sq-inch (126.451 mm) into the internal cavity.	Permitted for 300 cycle reduced inspection interval.
		More than 5 vanes with one material breakthrough or burnthrough and more than 0.300 inch (7.620 mm) but less than 0.500 inch (12.700 mm) diameter or up to 0.196 sq-inch (126.451 sq-mm) maximum.	Permitted for 150 cycle reduced inspection interval.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		For leading edge burn-through more than 0.500 inch (12.700 mm) diameter: No limit on the number of vanes with leading edge burnthrough up to 1.614 inch (40.996 mm) maximum radial length that does not go axially more than the first row of concave side cooling holes and does not go axially more than the second row of convex side cooling holes is permitted if there is no burning on the internal baffle.	Permitted for 50 cycle reduced inspection interval.
		Vane baffle burned through.	Not permitted. Remove and Replace.
		More than the above internal inspection limits.	Remove engine in 5 cycles maximum or less.
Material Break-through or Burn-through	Concave Side Trailing Edge	Burnthrough less than 75 percent span of axial length from the trailing edge to the rear cooling holes and up to 1.575 inches (40.005 mm) maximum width.	

1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Burnthrough more than 75 percent span of axial length from the trailing edge to the rear cooling holes and up to 1.575 inches (40.005 mm) maximum width.	Permitted for 300 cycle reduced inspection interval.
		Burnthrough up to 0.512 inch (13.005 mm) forward of the rear two rows of cooling holes and up to 1.575 inches (40.005 mm) maximum width.	Permitted for 150 cycle reduced inspection interval.
		Burnthrough more than 0.511 inch (12.979 mm) forward of the rear two rows of cooling holes, or is more than 1.575 inches (40.005 mm) in width, or if the internal baffle is burned through.	Remove engine in 5 cycles maximum or less.
	Convex Side Trailing Edge	Burnthrough less than 50 percent span from the trailing edge to the rear cooling holes.	
		Burnthrough more than 50 percent span from the trailing edge to the rear cooling holes.	Permitted for 150 cycle reduced inspection interval.
		Burnthrough is forward of the rear cooling holes.	Remove engine in 5 cycles or less.

MECH | INSP

1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Cracks, (Axial and Radial)	Leading Edge Surface	No limit on the quantity of tight cracks. Closed loop cracks are not permitted.	
		One crack in each vane starting at the ID or OD platform, to a maximum height of 0.500 inch (12.700 mm).	
		A maximum of 3 cracks in each vane which go to a concave or convex airfoil cooling hole. Closed loop cracks are not permitted.	
		Two cracks in each vane starting at the ID or OD platforms, to a maximum height of 0.750 inch (19.050 mm).	Permitted for 300 cycle reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycles maximum or less.

MECH | INSP

1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	Concave Airfoil Surface	No limit on the quantity of axial or radial cracks less than 0.157 inch (3.988 mm) are permitted. Closed loop cracks are not permitted. NOTE: A crack or part length of a crack that has burned or eroded to a width more than 0.050 inch (1.270 mm) must be identified as a hole. The breakthrough or burnthrough limits apply.	
		A maximum of three axial cracks that go from one cooling hole group to the next cooling hole group or from the trailing edge to the rear cooling hole group are permitted.	
		One of the above three axial cracks can go forward or rearward to the next cooling hole group or from the trailing edge through the rear cooling hole group to the next cooling hole group.	

MECH | INSP

1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		No limit on the quantity of axial cracks that go from one cooling hole group to the next cooling hole group or from the trailing edge to the rear cooling hole group if the cracks do not form a closed loop.	Permitted for 300 cycle reduced inspection interval.
		Radial cracks that go from the ID or OD platform to the concave airfoil are permitted. The maximum crack length on the airfoil from the platform is 0.500 inch (12.700 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface.	

MECH | INSP

1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Radial cracks that go from the ID or OD platform to the concave airfoil surface more than 0.500 inch (12.700 mm) but less than 0.800 inch (20.320 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface.	Permitted for 300 cycle reduced inspection interval.
		Three radial cracks maximum to 0.500 inch (12.700 mm) maximum length are permitted.	
		No limit on the quantity of radial cracks to 0.800 inch (20.320 mm) length.	Permitted for 300 cycle reduced inspection interval.

MECH | INSP

1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		A crack can intersect with another crack except for cracks that start at the ID or OD platform. The maximum length for either crack leg is 0.400 inch (10.160 mm). The intersection of platform cracks with airfoil cracks is not permitted.	
		An intersecting crack with a leg more than 0.400 inch (10.160 mm) and less than 0.800 inch (20.320 mm) except for cracks that start at the the ID or OD platform. The intersection of platform cracks with airfoil cracks is not permitted. length.	Permitted for 300 cycle reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycles maximum or less.

MECH | INSP

1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	Convex Airfoil Surface	No limit on the quantity of axial or radial cracks less than 0.157 inch (3.988 mm) are permitted. Closed loop cracks are not permitted. NOTE: A crack or part length of a crack that has burned or eroded to a width more than 0.050 inch (1.270 mm) must be identified as a hole. The breakthrough or burnthrough limits apply.	
		Three axial cracks maximum to 0.500 inch (12.700 mm) maximum length except as follows: One of the three axial cracks can traverse from the trailing edge for a maximum distance of 0.750 inch (19.050).	
		Six axial cracks maximum to 0.800 inch (20.320 mm) maximum length except as follows: One of the six axial cracks can traverse from the trailing edge for a maximum distance of 1.300 inches (33.020 mm), or to the last row of cooling holes.	Permitted for 300 cycle reduced inspection interval.
		One axial crack from the trailing edge to a maximum of 1.181 inches (29.997 mm).	

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		One axial crack from the trailing edge more than 1.181 inches (29.997 mm) to 2.362 inches (59.995 mm) maximum is permitted.	Permitted for 300 cycle reduced inspection interval.
		Three radial cracks to 0.500 inch (12.700 mm) length.	
		No limit on the quantity of radial cracks to 0.800 inch (20.320 mm) maximum.	Permitted for 300 cycle reduced inspection interval.
		A crack can intersect with another crack except for cracks that start at the ID or OD platforms. The maximum length for either crack leg is 0.500 inch (12.700 mm). Intersection of platform cracks with airfoil cracks is not permitted.	
		An intersecting crack with a leg more than 0.500 inch (12.700 mm) and less than 0.800 inch (20.320 mm) except for cracks that start at the ID or OD platform. Intersection of platform cracks is not permitted.	Permitted for 300 cycle reduced inspection interval.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Radial cracks that go from the ID or OD platforms to the convex airfoil are permitted. The maximum crack length on the airfoil from the platform is 0.500 inch (12.700 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface.	
		Radial cracks that go from the ID or OD platform to the convex airfoil surface more than 0.500 inch (12.700 mm) but less than 0.800 inch (20.320 mm) are permitted. Cracks from a platform that go to the air-airfoil surface cannot intersect other cracks on the airfoil surface.	Permitted for 300 cycle reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycles maximum or less.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	ID and OD Platform Surfaces (Buttresses)	No limit on the quantity of cracks less than 0.250 inch (6.350 mm) in length on the platform surfaces are permitted. Intersecting cracks are permitted if no closed loop is formed. Closed loop cracks are not permitted.	
		NOTE: A crack or part length of a crack that has burned or eroded to a width of more than 0.050 inch (1.270 mm) must be identified as a hole. The breakthrough or burnthrough limits apply.	
		Four cracks maximum more than 0.250 inch (6.350 mm) long are permitted on the OD platform concave airfoil side. Three of the cracks can be up to 0.700 inch (17.780 mm) long, and one crack can be of any length. These cracks can go to the airfoil concave surface to a height of 0.500 inch (12.70 mm).	

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Six cracks maximum more than 0.250 inch (6.350 mm) long are permitted on the OD platform concave airfoil side. Four of the cracks can be up to 0.700 inch (17.780 mm) long, and two of the cracks can be of any length. These cracks can go to the airfoil concave surface to a height of 0.800 inch (20.320 mm).	Permitted for 300 cycle reduced interval.
		Two cracks more than 0.250 inch (6.350 mm) long are permitted on the OD platform convex airfoil side from the airfoil fillet to platform edge.	
		Four cracks more than 0.250 inch (6.350 mm) long are permitted on the OD platform convex airfoil side from the airfoil fillet to platform edge.	Permitted for 300 cycle reduced inspection interval.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Two cracks maximum more than 0.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet to platform edge.	
		Four cracks more than 0.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet to platform edge.	Permitted for 300 cycle reduced inspection interval.
		One crack maximum for each side and two cracks total for each vane in the ID or OD fillet radius that goes parallel or axially along the fillet radius surface. The maximum length is 0.600 inch (15.240 mm). Airfoil/platform fillet radius cracks can intersect other cracks if the total length is less than 1.0 inch (25.400 mm). No circumferential cracks in the leading edge fillet.	

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603			
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		One crack maximum for each side and two cracks total for each vane in the ID or OD fillet radius that goes parallel or axially along the fillet radius surface. The maximum length is 1.000 inch (25.400 mm). Airfoil/platform fillet radius cracks can intersect other cracks if the total length is less than 1.750 inches (44.450 mm).	Permitted for 300 cycle reduced inspection interval.
		One crack maximum in the ID or OD leading edge fillet radius surface that goes circumferentially around the leading edge to a length of 0.400 inch)10.160 mm) maximum.	Permitted for 300 cycle reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycles maximum or less.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(b) Use these limits when you examine the 1st-stage HPT blades:

NOTE: The first sign of corrosion on a blade is a circular stain or mark on the outer surface of the blade. A green to white and blue color stain is a sign of sulfidation corrosion.

NOTE: Blade erosion removes the surface layer which is for protection. This will quickly cause deterioration of the inner alloy.

NOTE: A sign of airfoil growth is when the length of the blade is increased and the perimeter of the middle is decreased.

1) If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.

2) If these conditions will quickly occur, immediately remove the engine: part failure, or areas where material will break off.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Nicks and Dents NOTE: No crack that is with a nick or dent is permitted, unless it is, in the limits for Axial or Radial Cracks.	A	None	On each blade, one nick or dent that is no more than 0.08 inch (2.032 mm) in length or diameter.
	B	All Nicks or dents that are not more than 0.08 inch (2.032 mm) in length or diameter.	All nicks or dent that are not more than 0.125 inch (3.175 mm) in length or diameter.
Burned Areas NOTE: Burned areas that cause a decrease in the flow of cooling air is not permitted.	A, B, and C	Burned areas are not permitted.	Burned areas to a maximum of 0.750 inch (19.050 mm) in diameter or 0.422 square inch (285.0 square mm) in area. Leading edge burned areas to a maximum of 0.40 inch (10.160 mm) in diameter Or 0.126 square inch (81.0 square mm) in area.
Erosion damage on the surface layer.	A, B, and C	All amounts are Permitted.	All amounts are permitted.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Axial or Radial Cracks NOTE: See the subsequent limits for open cracks. Material tears are the same as cracks.	A	None	One hole to hole crack on the leading edge only. No airfoil cracks. NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OR IMMINENT MATERIAL LIBERATION. REMOVE ENGINE WITHIN 5 CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED.
	B	All axial or radial cracks or hole to hole cracks at the tip or leading edge are permitted. No breakthrough or open areas. No intersecting cracks or imminent material liberation. NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OR IMMINENT MATERIAL LIBERATION.	Axial or radial cracks on the leading edge, airfoil or tip area are permitted. Breakthrough to internal cavity with open area to breakthrough limit is permitted. NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OR IMMINENT MATERIAL LIBERATION. REMOVE ENGINE WITHIN 5 CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Axial or Radial Cracks NOTE: See the subsequent cracks. Material tears are the same as cracks.	C	All quantities of platform edge cracks that do not go into the platform to airfoil fillet radius and do not have signs of platform curling.	All quantities of platform edge cracks that go into the platform to airfoil fillet radius UP TO 0.250 INCH (6.350 mm) RADIALLY PAST THE RADIUS INTO THE AIRFOIL. NOTE: REMOVE ENGINE WITHIN 5 CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED. PLATFORM CURL (BEND) IS NOT PERMITTED.

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Holes that are Broken or Burned through to the Internal Cavity	A	None is permitted. IMMEDIATELY REMOVE THE ENGINE.	
	B	None	On each blade, one piece that is gone from the tip or one hole that is less than 0.125 square inch (81.0 square mm) in area. No more than five blades with these holes on each rotor. NOTE: If the hole is more than the decreased time limits, but fully in area B, remove the engine within 50 cycles. If the hole goes outside of area B, remove the engine within 5 cycles or immediately.
Bent Tip	B	A bent tip is permitted if the damage is not worse than other damage limits.	
Leading Edge Holes and Blocked Cooling Air Exit Slots in the Trailing Edge	A and B	Two leading edge holes (not adjacent) and two blocked trailing edge exit slots on each blade.	
Blocked Cooling Air Exit Holes in the Tip	B	Two blocked holes on each blade.	All blocked holes if the damage is not worse than other damage limits.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Tip Rub or Plasma Spray Deterioration	B	All quantities, if it is not worn through to the internal cavity.	
Areas where the Blade Parent Material is Gone	A and B	None	None, but that which is in the limits for Broken or Burned Hole.
Airfoil Growth	A and B	None IMMEDIATELY REMOVE THE ENGINE.	

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(c) PW4056 ENGINES PRE-PW-SB 72-466;
Examine the 1st-Stage HPT blades for airfoil bulges as follows (Fig. 622):

NOTE: Refer to PW SB 72-422 for data about how to point the borescope through the AP-8 and AP-11 access ports.

1) If you use AP-11, examine the 1st-stage HPT blades for bulges (which cause the blade tip to curve) as follows:

a) Examine the blades for bulges after the first 2,000 cycles and after each 250 cycles or each subsequent "A check".

b) If you find a bulge, remove the engine within 25 cycles.

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

2) If you use a flexible borescope with a guide tube through AP-8, examine the concave side of the 1st-stage HPT blades for dark spots as follows:

NOTE: The 1st-stage HPT blades with airfoil bulging usually have a large dark spot or shadow near the bulge. A dark spot that goes forward of the fifth tip cooling hole is a sign that the blade was too hot, which can cause bulging.

a) Examine the blades for dark spots after the first 2,000 cycles and after each 250 cycles or each subsequent "A check".

b) If you find a bulge or a white spot in a dark spot, remove the engine within 25 cycles.

NOTE: A white spot within a dark spot can be a sign of spalled coating which is caused by a bulge.

c) If you find more than 30 blades with dark spots that go forward of the fifth tip cooling air hole, examine the engine each 20 cycles and remove the engine within 100 cycles.

(d) PW4060 ENGINES PRE-PW-SB 72-466;
Examine the 1st-Stage HPT blades for airfoil bulges as follows (Fig. 622):

NOTE: Refer to PW SB 72-422 for data about how to point the borescope through the AP-8 and AP-11 access ports.

1) If you use AP-11, examine the 1st-stage HPT blades for bulges (which cause the blade tip to curve) as follows:

a) Examine the blades for bulges after the first 1,000 cycles and after each 250 cycles or each subsequent "A check" until the 1,900th cycle.

b) After the 1,900th cycle, examine the blades for bulges each 125 cycles.

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

c) If you find a bulge before the 1,500th cycle, examine the engine for worse damage each 50 cycles.

d) If you find a bulge after the 1,500th cycle, remove the engine within 25 cycles.

2) If you use a flexible borescope with a guide tube through AP-8, examine the concave side of the 1st-stage HPT blades for dark spots as follows:

NOTE: The 1st-stage HPT blades with airfoil bulging usually have a large dark spot or shadow near the bulge. A dark spot that goes forward of the fifth tip cooling hole is a sign that the blade was too hot, which can cause bulging.

a) Examine the blades for dark spots after the first 1,000 cycles and after each 250 cycles or each subsequent "A check" until the 1,900th cycle.

b) If you find a white spot in a dark spot after the 1,500th cycle, remove the engine within 25 cycles.

NOTE: A white spot within a dark spot can be a sign of spalled coating which is caused by a bulge.

c) After the 1,900th cycle, examine the blades for bulges each 125 cycles.

d) If you find more than 30 blades with dark spots that go forward of the fifth tip cooling air hole, remove the engine within 25 cycles.

e) If you find a bulge remove the engine within 10 cycles.

(e) Insert the borescope through the port and examine the HPT 2nd-stage blades as follows.

1) Look for signs of nicks, dents, cracks, tip damage, erosion, coating loss, liberated materials, bent tip, tip rub, airfoil growth, blocked cooling holes, sulfidation and damage caused by passage of foreign object metarials.

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

2) You must examine each blade, and rotate the high rotor using hand or foot operated equipment.

(f) Use these limits when you examine the 2nd-stage HPT blades:

NOTE: The first sign of corrosion on a blade is a circular stain or mark on the outer surface of the Blade. A green to white and blue color stain is a sign of sulfidation corrosion.

NOTE: Blade erosion removes the surface layer which is for protection. This will quickly cause deterioration of the inner alloy.

NOTE: A sign of airfoil growth is when the length of the blade is increased and the perimeter of the middle is decreased.

NOTE: The loss of the blade coating can possibly result in

decreased life of the base alloy. This condition, as well as hot corrosion that attach (sulfidation), can affect the blade reliability.

1) If damage is worse than the decreased time inspection limits, remove the engine from operation before the 6th cycle.

2) If these conditions will quickly occur, immediately remove the engine from operation: part failure, or areas where material will break off.

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Nicks and Dents	A	None	On each blade, one nick or dent that is not more than 0.025 inch (0.635 mm) in length or diameter.	For imminent material liberation, remove engine immediately.
NOTE: No crack that is with a nick or dent is permitted, unless it is in the limits for Axial or Radial Cracks.	B	All nicks or dents that are not more than 0.130 inch (3.302 mm) in length or diameter.	All nicks or dents that are not more than 0.250 inch (6.350 mm) in length or diameter.	
	C	All nicks or dents that are not more than 0.130 inch (3.302 mm) in length or diameter.	All nicks or dents that are not more than 0.300 inch (7.620 mm) in length or diameter.	

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Surface Layer Deterior-ation, Burned Areas Erosion	A, B	One defect on each blade, in these limits: 1) Surface layer deterioration on the airfoil no more than 0.750 inch (19.050 mm) in diameter, 0.442 square inch (285 square mm) in area, or 2) Leading edge burned areas no more than 0.400 inch (10.160 mm) in diameter, 0.126 square inch (81 square mm) in area.		
	C	Same as A, B	One defect on each blade if it is in the burned or broken hole limits.	

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Axial or Radial Cracks NOTE: If there are holes, see "Holes that are Burned through to the Internal Space", below. Material tears are the same as cracks.	A	None. IMMEDIATELY REMOVE THE ENGINE.		
	B	None	All cracks that are less than 0.130 inch (3.3mm) in length and not with broken holes and do not connect with other cracks.	For imminent material liberation, remove engine immediately.
	C	All cracks are permitted provided that there are no open areas. No intersecting cracks or immnent material liberation are permitted.	All cracks on the leading edge or airfoil at tip are permitted. Break-through to internal cavity with open area to breakthrough limit is permitted.	For imminent material liberation, remove engine immediately.

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Holes that Broken or Burned thr to the Int Space	A, B	None. IMMEDIATELY REMOVE THE ENGINE.		
	C	None	On each blade, one piece that is gone from the lip or one hole that is less than 0.125 square inch (81 square mm) in area. No more than five blades with these holes on each rotor.	For imminent material liberation, remove engine immediately.
Bent Tip	C	Permitted if other conditions are not exceeded.		Remove Engine Immediately
Trailing Edge Cooling Air Slots Blockage	A	A maximum of one trailing edge cooling air slot blocked per blade is permitted.		Remove engine immediately
	B, C	A maximum of two non-adjacent trailing edge cooling air slots blocked per blade is permitted.		Remove engine immediately
Tip Rub or Plasma Spray Loss	C	Any amount is acceptable if not rubbed into the internal cavity.		Remove engine immediately

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Liberated Blade Parent Material	A, B and C	None	None except as defined for "Material breakthrough into internal cavity" observed condition	Remove engine immediately
Airfoil Growth (as evid-enced by: bent or displaced 2nd stage blade(s) relative to adjcent blades in rotor	A, B and C	None See Fig. 621A	None See Fig. 621A	Remove engine immediately
Abnormal/ excessive tip rub				

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Wavy/ deformed trailing edge				
Necking or thinning of airfoil profile at midspan region				
Cracks in the midspan trailing edge cooling hole openings				

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(g) Remove the PWA 86441 guide tube from the AP–8 ports.

(h) Apply Silver Goop to the plug threads.

(i) Install the plug with a new AP-8 gasket.

(j) Tighten the AP-8 plugs.

(k) Install lockwire on the AP-8 plug.

(7) Install the access port plug AP-9 (Fig. 605A):

(a) Apply silver goop to the plug threads.

(b) Install the plugs with new AP-9 washers.

(c) Tighten the AP-9 plugs.

(d) Install lockwire on the AP-9 plug.

(8) Install the access port AP-10 (Fig. 605A):

(a) If the access port AP-10 is disassembled, assemble it for the installation.

NOTE: The plug assembly is not usually disassembled. If you will examine the 3rd-Stage LPT vanes and blades , do not install the AP-10 access plug.

1) When you install the spring tension washer in the cover recess, make sure these conditions occur: the outer diameter of the washer touches the cover, and the concave surface of the washer is adjacent to the cover.

2) From the washer side, put the plug in the assembled washer and cover.

3) Push the cotter pin in the plug until the cotter pin head is tightly against the flat side of the plug.

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(b) With the split side to the inside, install the plug with a new AP-10 gasket.

NOTE: The plug will be in the case boss and the spring washer will push the plug to the inside.

(c) Attach the plug stop cover to the plug (AP-10).

(d) Fully clean the bolt threads and the plug threads with petroleum solvent.

NOTE: This removes unwanted carbon and all the used anti-seize paste (PO6-054).

(e) Apply a layer of Silver Goop to the threads of the bolts and remove the unwanted compound.

(f) With the bolts, attach the plug stop to the access port boss (Fig. 618).

(g) Tighten the bolts (See Table 605A).

(h) Install lockwire on the AP-10 plug.

(9) ENGINES WITH BORESCOPE PLUG AP-11 (POST-PW-SB 72-157); Install the AP-11 plug in the No. 3 TVBCA duct (Fig. 605A).

(a) Install the gasket in the borescope plug groove.

(b) Install the AP-11 plug at the aft elbow of the No. 3 TVBCA duct.

(c) Engage the AP-11 plug end in the inner hole of the HPT to seat it.

(d) Install the bolts, threads lubricated with engine oil.

(e) Tighten the bolts, in a sequence that is not circular (See Table 605A).

1) Install lockwire on the plug.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

AP-10 and AP-11 Borescope Plug Installation Data
Table 605A

AP Number And Location	Gasket Required	Bolt Locking Method	Bolt Replacement Lubricant	Bolt Torque Value lb-in (N.m)
AP-10 HPT 2nd-Stage	Yes ST1146-08	Lockwire (MS9226-04)	P06-023 Silver Goop	54.000 - 60.000 (6.101 - 6.779)
AP-11 Lower TCA Tube	Yes PN ST1142-011 (Gasket)	Self-locking	P03-001 Engine Oil	75.000 - 85.000 (8.474 - 9.604)

(10) Do this procedure: Put the Airplane Back to its Usual Condition.

4. LPT Vanes (3rd-Stage)-Inspection

A. General

(1) This inspection is the visual check of the 3rd-stage vanes in the primary gaspath of the LPT.

(2) The limits in this section will help you know if the engine can continue to operate or if you must remove and repair it.

B. Equipment

(1) AP-10 Gasket - PWA ST1146-08

(2) Puller - PWA 86081 (For removal of the AP-10 Plug Assembly)

(3) Wedge (Block - Fan Blade) - PWA 102757 (3 are required during windy conditions)

(4) Packing - Preform AS3209-121

(5) Crank Pad Cover Packing - PWA AS3204-121

C. Consumable Materials

(1) D50124 Anti-seize paste (P06-054)

(2) G00966 Kerosene - VV-K-211

(3) B00776 Petroleum Solvent P-D-680, Type I

(4) D00244 - Antiseize compound, high temperature - Silver Goop

D. Do the LPT Vane Inspection.

CAUTION: WHEN YOU EXAMINE THE VANES, FIND THE CAUSE OF ALL OF THE FOD TO MAKE SURE THAT THE LPC IS SERVICEABLE. DAMAGE IN THIS AREA CAN BE AN INDICATION OF A MORE DANGEROUS PROBLEM. OTHER COMPONENTS CAN POSSIBLY BE DAMAGED.

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.

(1) Do this procedure: Prepare for the Borescope Inspection.

WARNING: DO NOT DO A BORESCOPE INSPECTION IF THE WIND IS MORE THAN 3 - 5 MPH (4.8 - 8 KPH). DURING WINDY CONDITIONS, THE N1 ROTOR CAN TURN (WINDMILL). THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE BORESCOPE EQUIPMENT.

WARNING: INSTALL THE PWA 102757 WEDGES BETWEEN THE FAN BLADES WHEN THE WIND IS LESS THAN 3 - 5 MPH (4.8 - 8 KPH). IF YOU DO NOT INSTALL THE WEDGES DURING MILD WIND CONDITIONS, THE N1 CAN TURN (WINDMILL). THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE BORESCOPE EQUIPMENT.

(2) If the wind condition is less than 3 - 5 MPH (4.8 - 8 KPH), install the wedges as follows.

MECH | INSP

(a) Do not install the wedge if the wind condition is more than 3 - 5 MPH (4.8 - 8 KPH).

(b) Install two or three wedges between the fan blades and the fan case at approximately the 6 o'clock position.

(c) Make sure the wedge is installed tight enough to prevent the fan blades from turning, but it must not raise the fan blades up.

(d) The red warning streamer must go towards the front of the engine inlet.

(e) If it is necessary to turn the N1 rotor to complete the borescope inspection, do the steps as follow.

1) Remove the wedges.

2) Turn the N1 rotor by hand and install the wedges again.

3) Do this procedure again until the borescope inspection is complete.

(3) Remove the plug from the LPT HPT access port AP-10; refer to Fig. 605 and 618 for the access port location and the borescope data.

(a) Remove the two bolts that attach the plug stop to the case (Fig. 618).

(b) Use a PWA 86081 Puller to remove, as an assembly, the plug, the plug stop, the spring washer, and the cotter pin; discard the gasket.

NOTE: Do not remove the cotter pin.

MECH | INSP

WARNING: DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND CIRCUMFERENTIAL CUT HOLES, FRAYING, OR BROKEN HOLES IN THE EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE CONDITIONS CAN CAUSE INJURY TO PERSONS.

CAUTION: MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW 150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

(4) Put the borescope through the access port to examine the 3rd-stage LPT vanes for nicks, dents, cracks, and other FOD.

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.

CAUTION: IF YOU FIND DAMAGE THAT IS WORSE THAN THE CONTINUE-IN-SERVICE LIMITS, OR PIECES OF THE VANE WILL FALL OFF, REMOVE THE ENGINE IMMEDIATELY. THIS TYPE OF DAMAGE CAN CAUSE MORE DAMAGE TO THE ENGINE IF IT IS NOT REPAIRED.

(5) Compare the damage you find with the continue-in-service limits shown in Fig. 622 (sheet 1).

(a) If there has been a sudden increase in EGT, check for a possible missing or liberated LPT 3rd-stage outer transition duct segment.

(b) No missing or liberated outer transition duct segments are permitted.

(6) Install the access port AP-10 (Fig. 605A):

NOTE: If you will do an inspection of the LPT 3rd-stage blades, do not install the access port AP-10.

MECH | INSP

(a) If the access port AP-10 is disassembled, assemble it for the installation.

NOTE: The plug assembly is not usually disassembled.

1) When you install the spring tension washer in the cover recess, make sure these conditions occur: the outer diameter of the washer touches the cover, and the concave surface of the washer is adjacent to the cover.

2) From the washer side, put the plug in the assembled washer and cover.

3) Push the cotter pin in the plug until the cotter pin head is tightly against the flat side of the plug.

(b) With the split side to the inside, install the plug with a new AP-10 gasket.

NOTE: The plug will be in the case boss and the spring washer will push the plug to the inner side.

(c) Attach the plug stop cover to the plug (AP-10).

(d) Fully clean the bolt threads and the plug threads with petroleum solvent.

NOTE: This removes unwanted carbon and all used anti-seize paste.

(e) Apply a layer of Silver Goop to the threads of the bolts and remove the unwanted compound.

(f) Attach the plug stop to the access port boss with the bolts (Fig. 618).

1) Tighten the bolts.

(g) Install lockwire on the AP-10 plug.

(7) Do this procedure: Put the Airplane Back to its Usual Condition.

5. LPT Blades (3rd-Stage) - Inspection

MECH | INSP

6. Put The Airplane Back to its Usual Condition

A. References

(1) AMM 71-11-04/201, Fan Cowl Panels

(2) AMM 71-11-06/201, Core Cowl Panels

(3) AMM 78-31-00/201, Thrust Reverser System

B. Put the Airplane Back to its Usual Condition

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Close the thrust reverser (AMM 78-31-00/201).

(2) Close the core cowl panel (AMM 71-11-06/201).

(3) Close the fan cowl panel (AMM 71-11-04/201).

(4) For the left engine, remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:

(a) 11D19, ENGINE START CONT L

(5) For the right engine, remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:

(a) 11D20, ENGINE START CONT R

(6) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

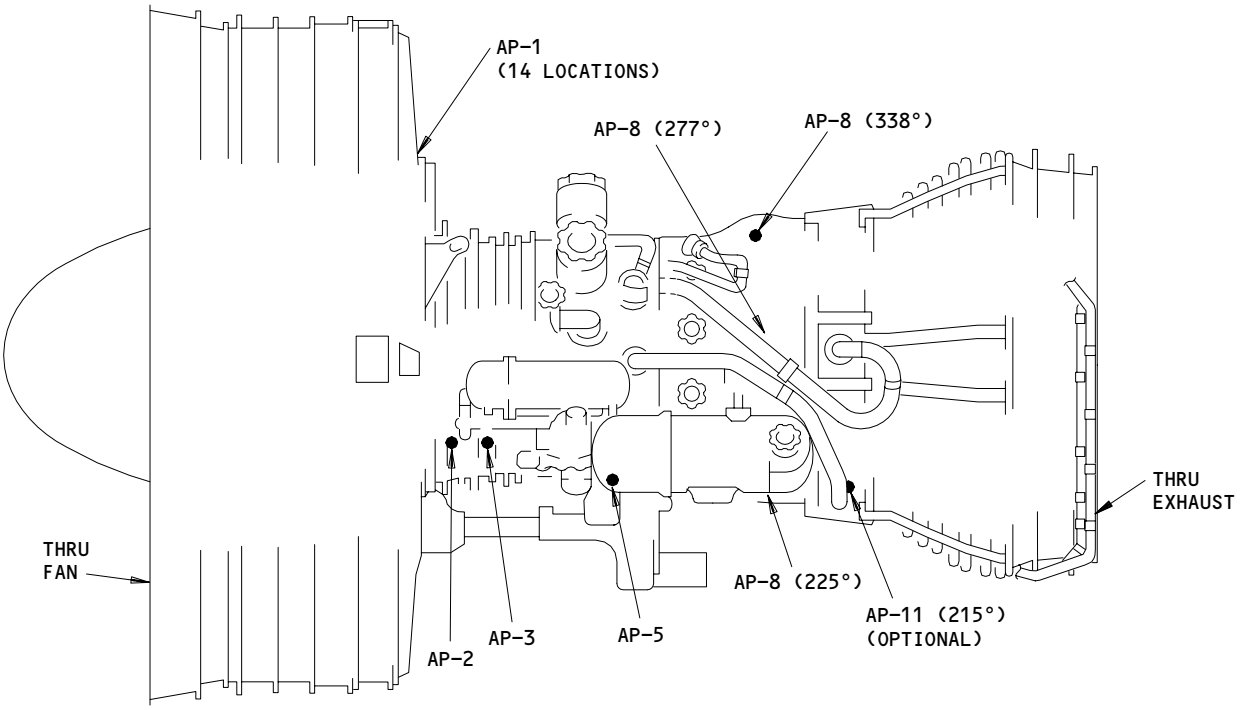
ACCESS PORT	ANGULAR POSITION CLOCKWISE FROM REAR	GASPATH LOCATION	PART(S) IN VIEW FOR INSPECTION	RECOMMENDED MAXIMUM PROBE DIAMETER IN/mm
THRU FAN	ALL	LPC COMPRESSOR INLET	1ST C-VANE 1ST C-BLADE	--
AP-1	245°	4TH-STAGE COMPRESSOR VANE	REAR OF 4TH C-BLADE FRONT OF 4TH C-VANE	--
AP-2	233°	5TH-STAGE COMPRESSOR VANE	REAR OF 5TH C-BLADE FRONT OF 6TH C-BLADE	0.270/6.8
AP-3	231°	6TH-STAGE COMPRESSOR VANE	REAR OF 6TH C-BLADE FRONT OF 7TH C-BLADE	0.270/6.8
AP-4	127°	8TH-STAGE COMPRESSOR VANE	REAR OF 8TH C-BLADE FRONT OF 9TH C-BLADE	0.270/6.8
AP-5	214°	10TH-STAGE COMPRESSOR VANE	REAR OF 10TH C-BLADE FRONT OF 11TH C-BLADE	0.270/6.8
AP-6	98°	12TH-STAGE COMPRESSOR VANE	REAR OF 12TH C-BLADE FRONT OF 13TH C-BLADE	0.270/6.8
AP-7	80°	14TH-STAGE COMPRESSOR VANE	REAR OF 14TH C-BLADE FRONT OF 15TH C-BLADE	0.270/6.8
AP-8	45°, 128°, 172°, 225°, 277°, 338°	COMBUSTION CHAMBER	FUEL NOZZLE COMBUSTION CHAMBER 1ST TURBINE VANE	0.444/11.3
AP-9	93°	COMBUSTION CHAMBER	FRONT OF 1ST T-VANE FRONT OF 1ST T-BLADE	0.270/6.8
AP-10	139°	TRANSITION DUCT	REAR OF 2ND T-BLADE FRONT OF 3RD T-VANE	0.270/6.8
AP-11	215°	STAGE 2 TURBINE BLADE	REAR OF 1ST T-BLADE FRONT OF 2ND T-BLADE	0.444/11.3
THRU EXHAUST CASE STRUTS	ALL		6TH T-BLADE 6TH T-VANE	

Borescope Access Port Data
Figure 605 (Sheet 1)

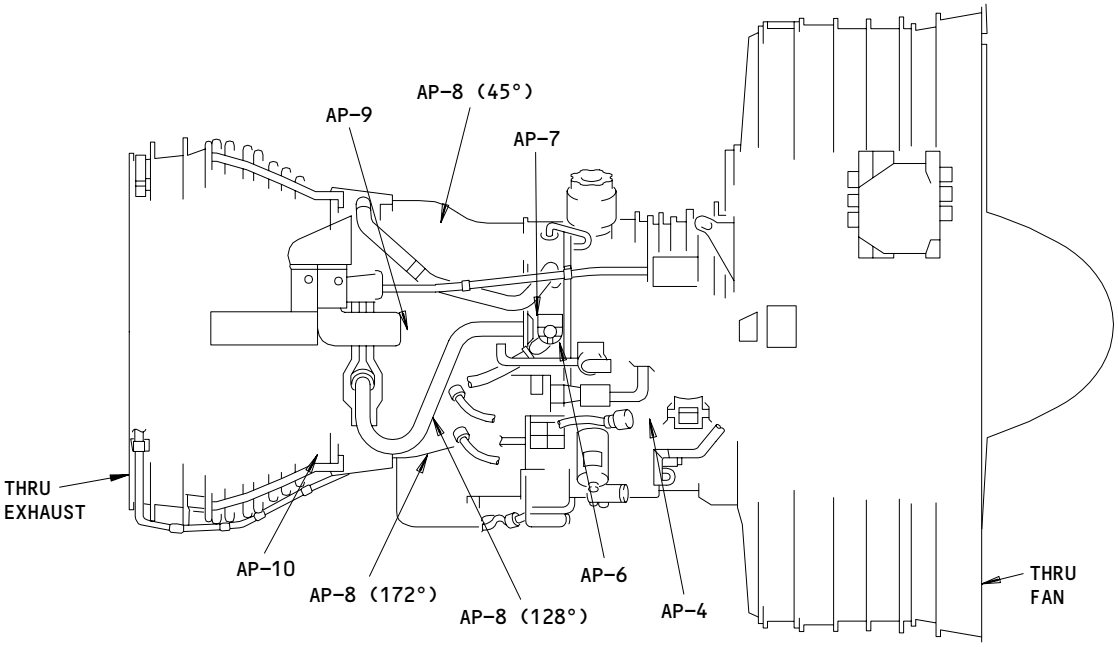
ACCESS PORT	NOTES
THRU FAN	
AP-1	1 7
AP-2	
AP-3	
AP-4	
AP-5	2
AP-6	3
AP-7	
AP-8, 45°	5
AP-8, 128°	5
AP-8, 172°	5 9
AP-8, 225°	5
AP-8, 277°	4
AP-8, 338°	5 6
AP-9	
AP-10	
AP-11	8

1. ACCESS IS THROUGH FOURTEEN 2.5 BLEED VALVE OPENINGS IN THE INNER LINING OF THE FAN EXIT CASE. A FLEXIBLE PROBE IS NECESSARY AT THIS ACCESS PORT.
2. BORESCOPE MUST BE ANGLED 5° AFT OF THE PLANE THAT IS AT 90° TO THE ENGINE CENTERLINE TO INSERT PROBE.
3. BORESCOPE MUST BE ANGLED 15° AFT OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
4. BORESCOPE MUST BE ANGLED 21° FORWARD OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
5. BORESCOPE MUST BE ANGLED 7.5° FORWARD OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
6. RIGHT ANGLE EYEPIECE RECOMMENDED.
7. ALLOW 3-4 INCHES (76-102 mm) FOR THE EYEPIECE LENGTH.
8. OPTIONAL BORESCOPE PORT LOCATION
9. RIGHT ANGLE EYEPIECE IS NECESSARY.

Borescope Access Port Data
Figure 605 (Sheet 2)

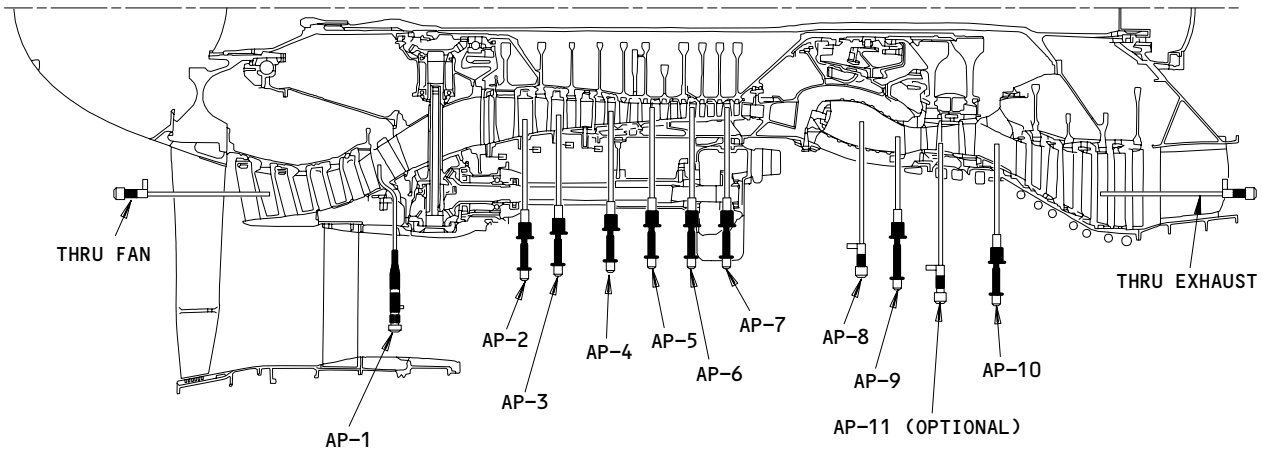


BORESCOPE ACCESS PORT
LOCATIONS - LEFT SIDE



BORESCOPE ACCESS PORT
LOCATIONS - RIGHT SIDE

Borescope Access Port Data
Figure 605 (Sheet 3)



ACCESS PORT GASPATH LOCATION

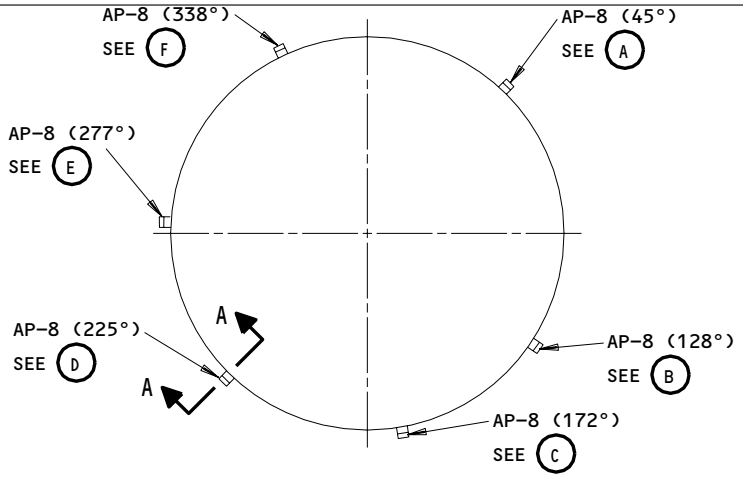
L-A0640
0688

Borescope Access Port Data
Figure 605 (Sheet 4)

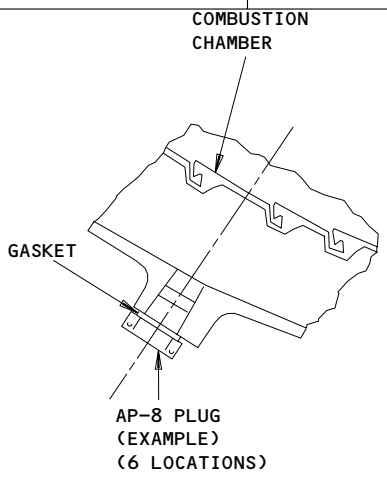
ACCESS PORT	ENGINE LOCATION	PACKING/ GASKET	LOCKING METHOD	PLUG LUBRICANT	TORQUE VALUE INCH-POUNDS (NEWTON-METERS)
AP-2	HPC 5TH-STAGE VANE	NO	SELF-LOCKING INSERT FOR EARLIER PLUG KEY WASHER (PN 53H027) FOR LATER PLUG	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-3	HPC 6TH-STAGE VANE	NO	SELF-LOCKING INSERT FOR EARLIER PLUG KEY WASHER (PN 53H028) FOR LATER PLUG	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-4	HPC 8TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (OUTER)	HPC 10TH-STAGE VANE	NO	3 KEY WASHER (MS 9582-19)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (OUTER)	HPC 10TH-STAGE VANE	NO	4 KEY WASHER (58H216)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (INNER)	HPC 10TH-STAGE VANE	NO	PLUG ASSEMBLY WITH INTEGRAL LOCK WASHER	ANTIGALLING COMPOUND 1	175-190 (19.8-21.5)
AP-5 (INNER)	HPC 10TH-STAGE VANE	NO	PLUG ASSEMBLY WITH INTEGRAL LOCK WASHER	2 4 6	175-190 (19.8-21.5)
AP-6	HPC 12TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-7 (OUTER)	HPC 14TH-STAGE VANE	NO	3 KEY WASHER (MS 9582-19)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-7 (OUTER)	HPC 14TH-STAGE VANE	NO	4 KEY WASHER (58H216)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-7 (INNER)	HPC 10TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND 1	175-190 (19.8-21.5)
AP-7 (INNER)	HPC 10TH-STAGE VANE	NO	SELF-LOCKING INSERT	2 4 6	175-190 (19.8-21.5)
AP-8 (45)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (128)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (172)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (225)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (277)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (338)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-9	REAR OF DIFFUSER CASE	WASHER	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-10	2ND-STAGE HPT BLADE	GASKET	LOCKWIRE	SILVER GOOP	54-60 (6.1-6.8)
AP-11 5	1ST-STAGE HPT BLADE	GASKET	LOCKWIRE	ENGINE OIL ON BOLT THREADS	75-85 (8.5-9.6)

1 ENGINES PRE-PW-SB 72-675
2 ENGINES POST-PW-SB 72-675
3 ENGINES PRE-PW-SB 72-708
4 ENGINES POST-PW-SB 72-708
5 ENGINES POST-PW-SB 72-157
6 ENGINES POST-PW-SB 72-755

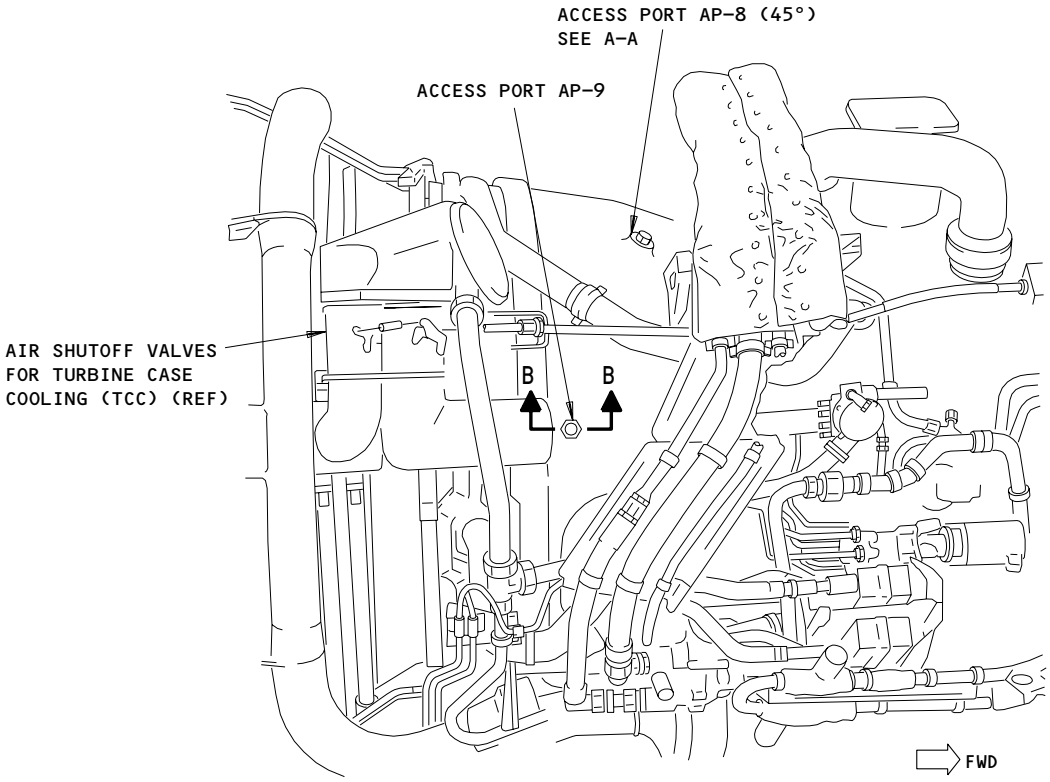
Borescope Access Port Installation Data
Figure 605A



AP-8 PORT LOCATIONS
(VIEW IN THE FORWARD DIRECTION)

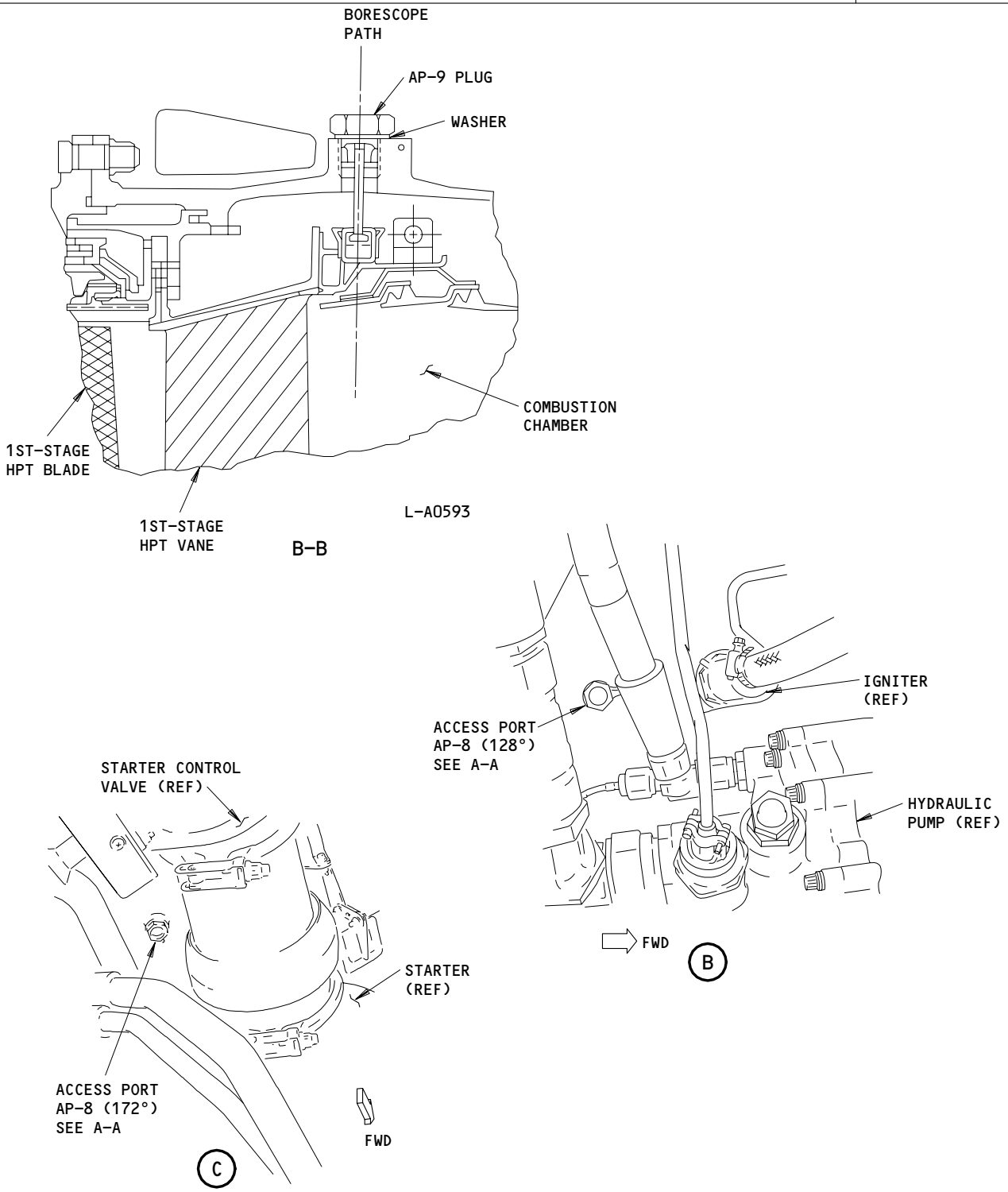


A-A

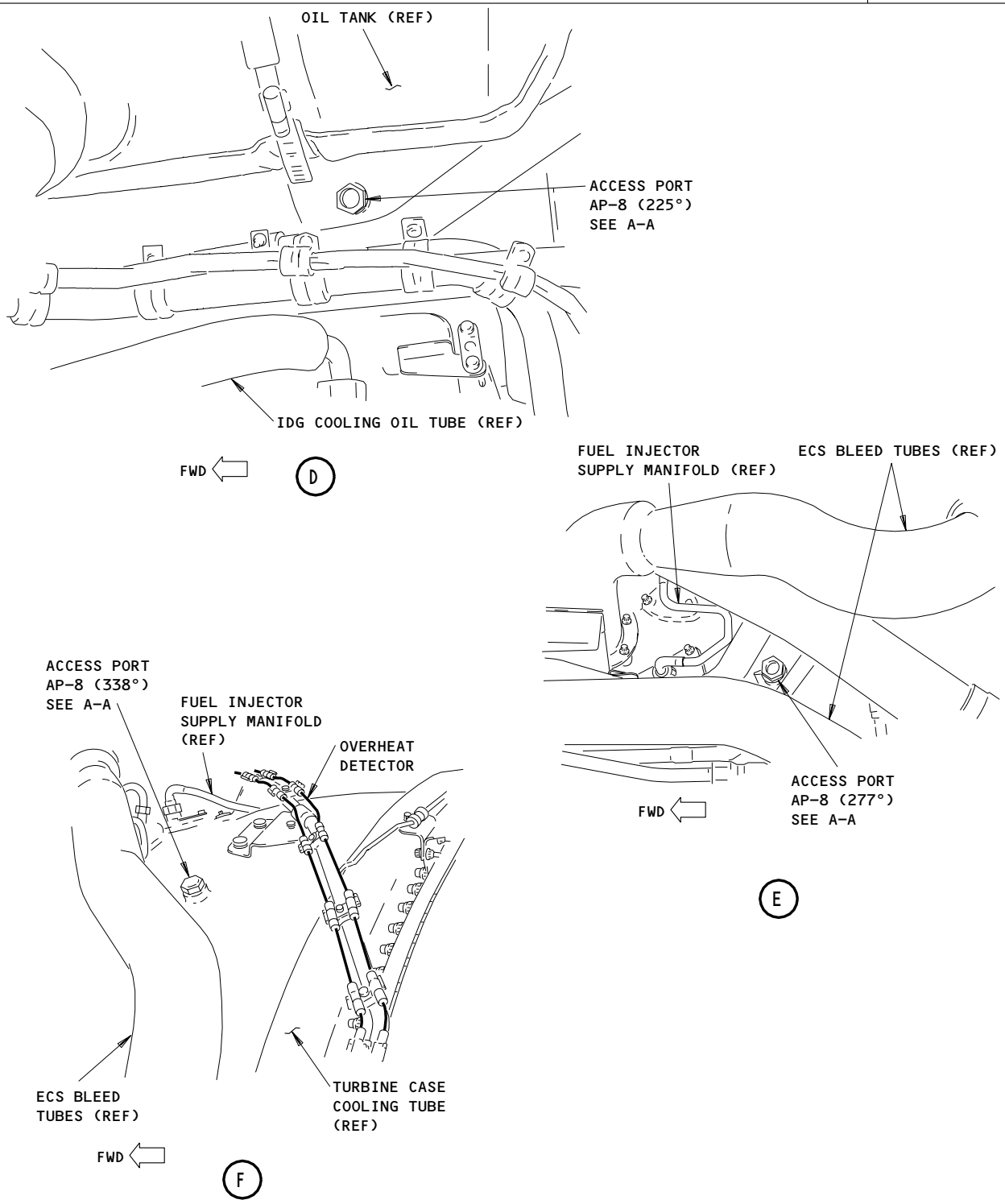


DIFFUSER CASE
A

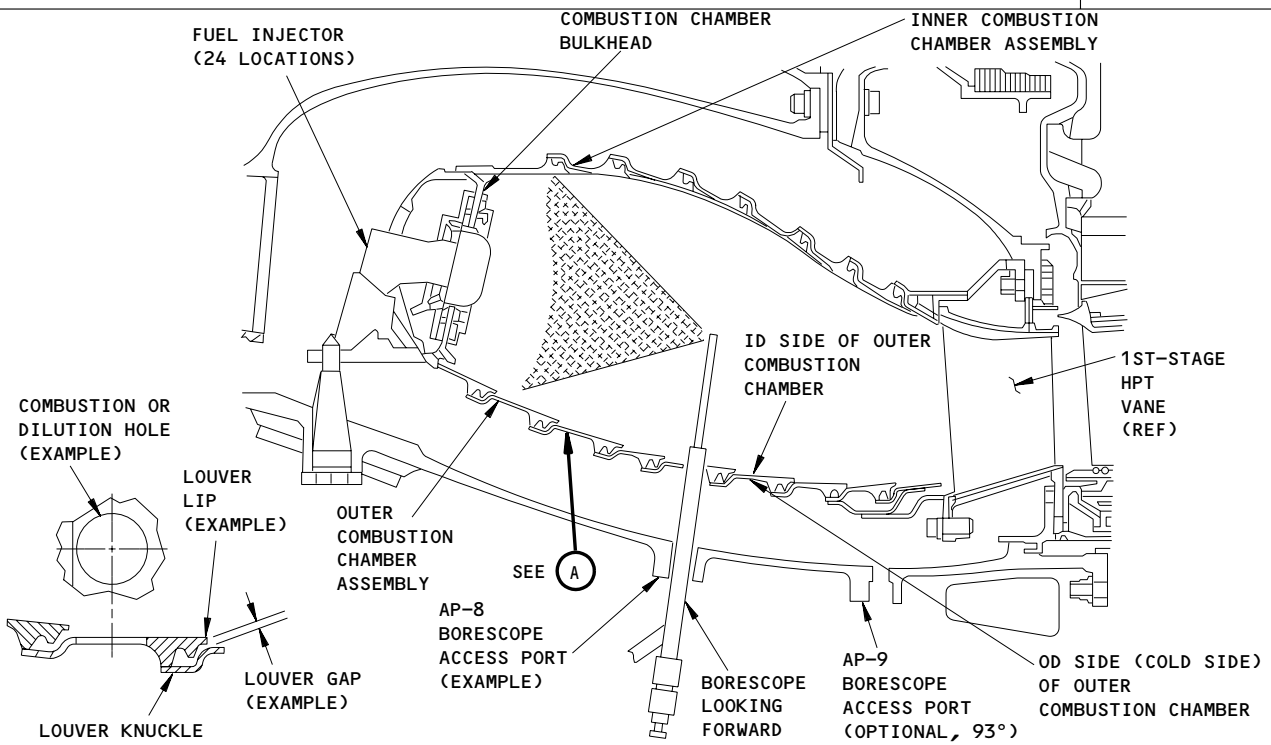
Combustion Chamber Access Ports
Figure 611 (Sheet 1)



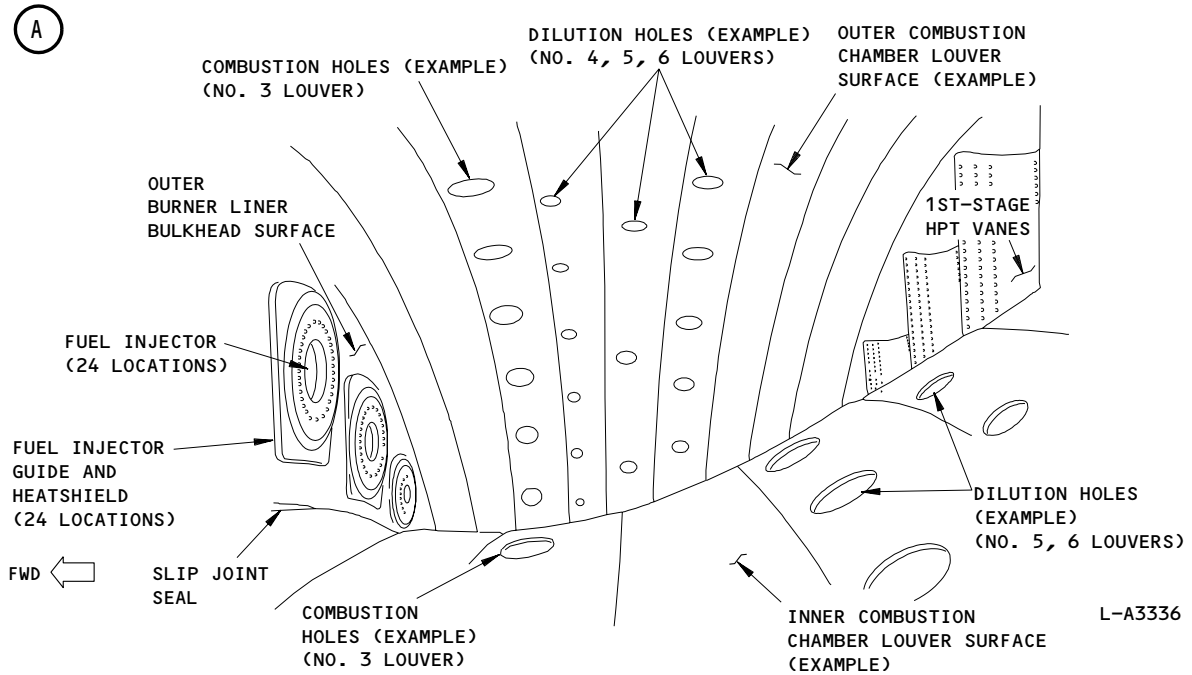
Combustion Chamber Access Ports
Figure 611 (Sheet 2)



Combustion Chamber Access Ports
Figure 611 (Sheet 3)

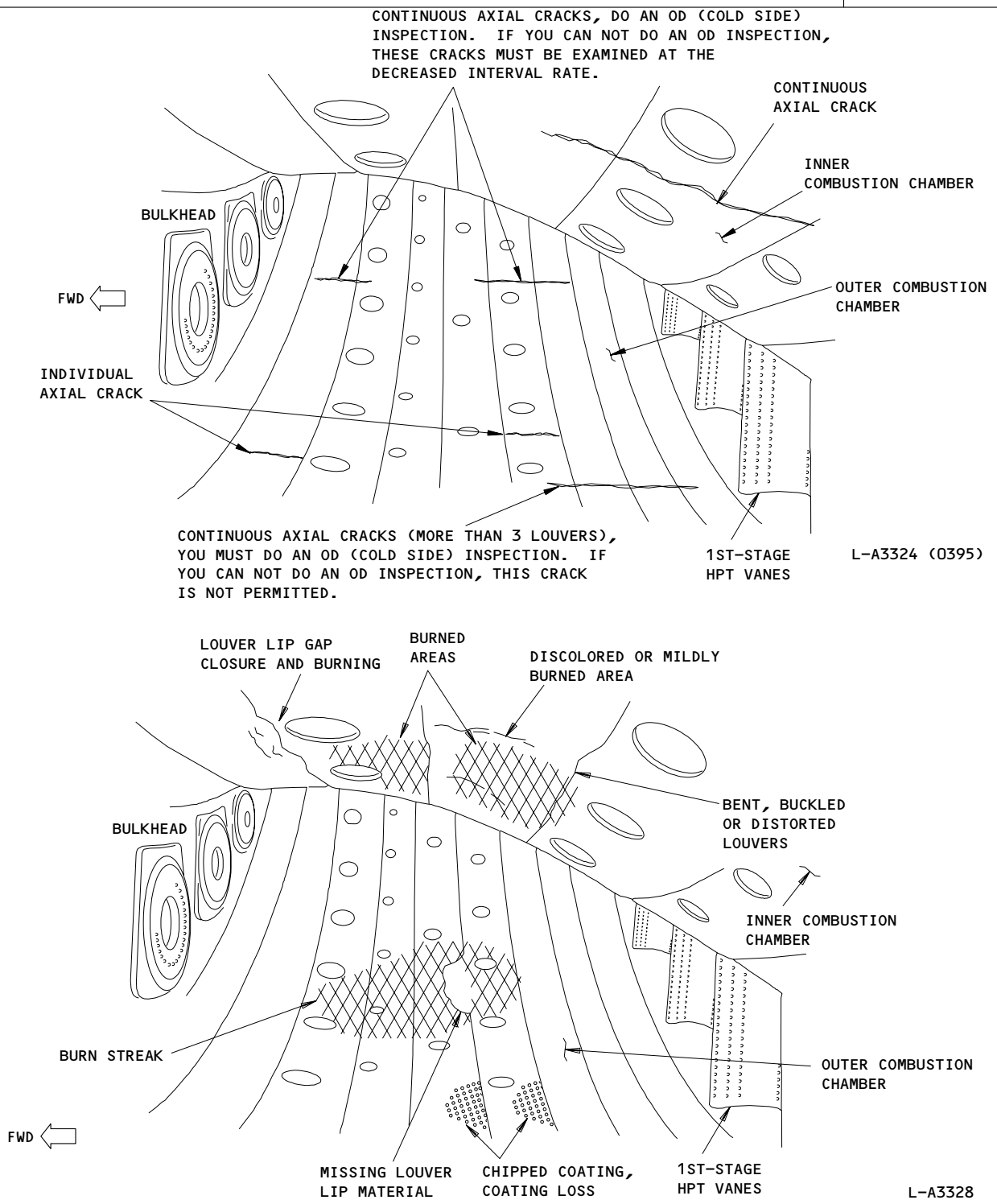


COMBUSTION CHAMBER CROSS-SECTION



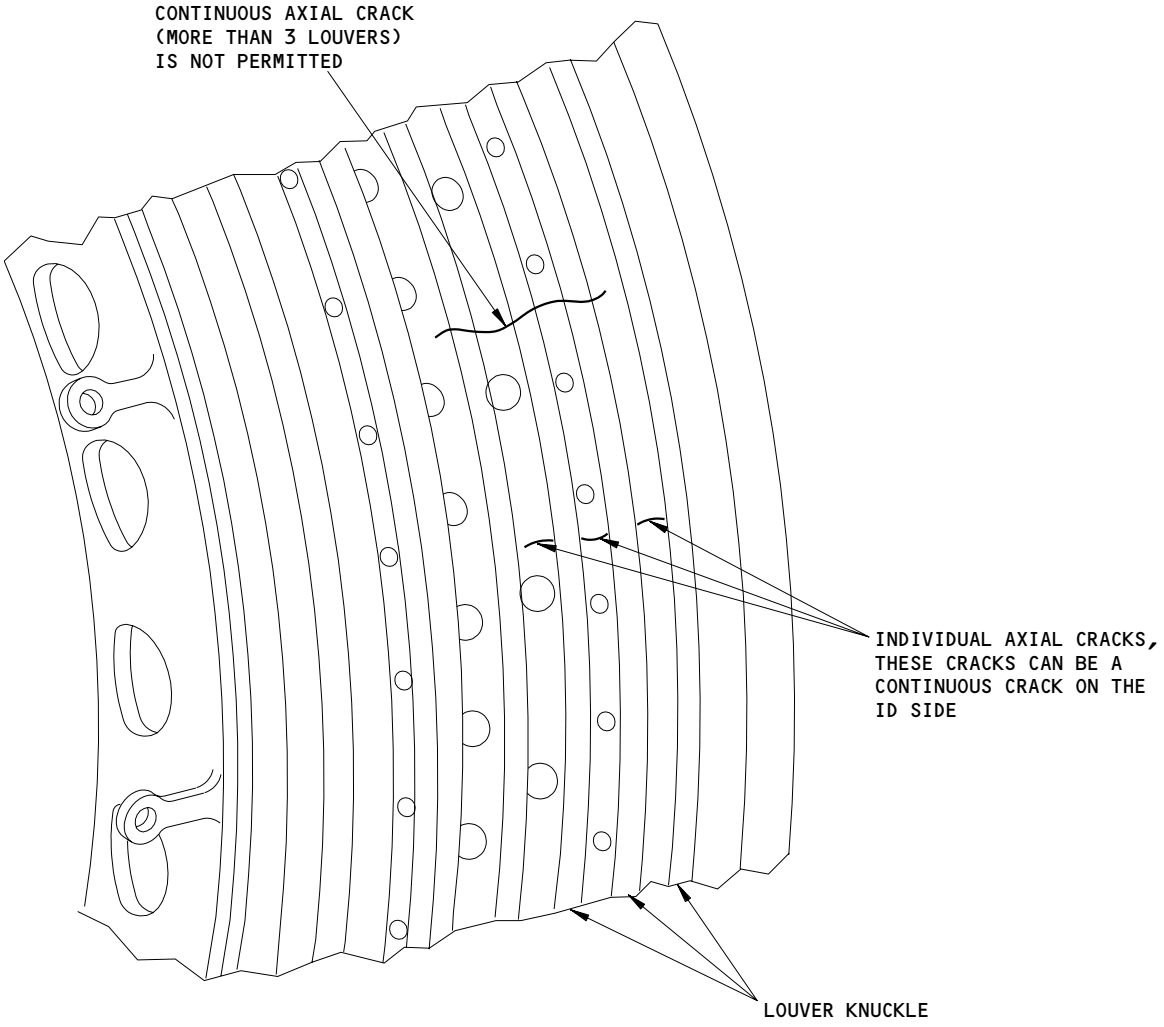
COMBUSTION CHAMBER INTERNALS
VIEW LOOKING CIRCUMFERENTIALLY

Combustion Chamber Components
Figure 612



VIEW IN THE CIRCUMFERENTIAL DIRECTION

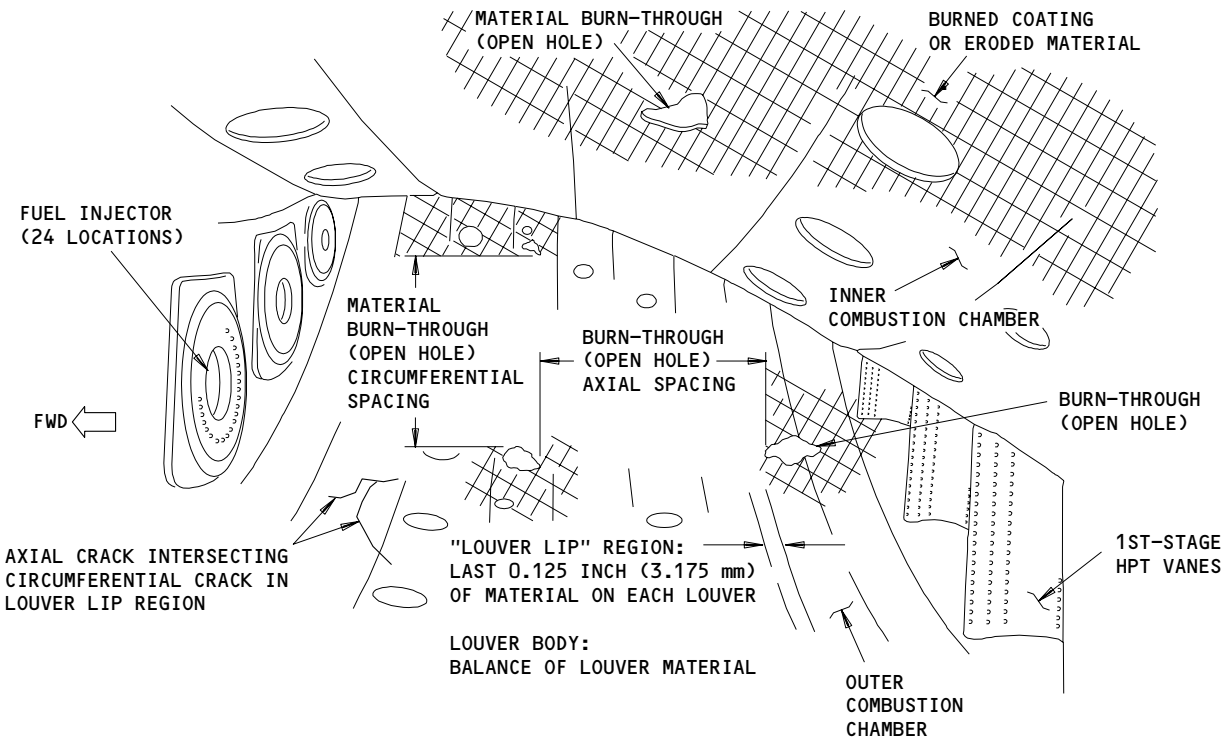
Inner and Outer Combustion Chamber Distress
Figure 613 (Sheet 1)



OD (COLD SIDE) VIEW OF OUTER
COMBUSTION CHAMBER

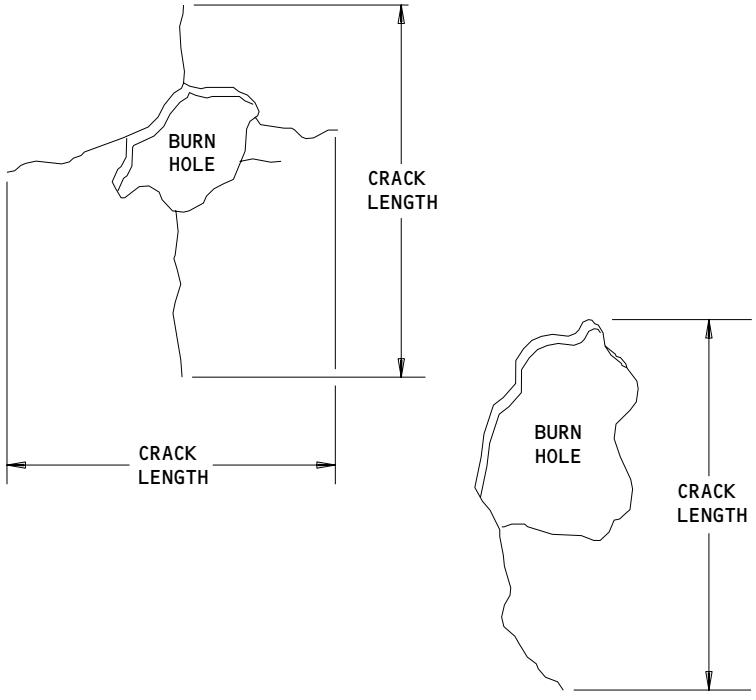
L-B0742 (0000)
PW V

Inner and Outer Combustion Chamber Distress
Figure 613 (Sheet 2)



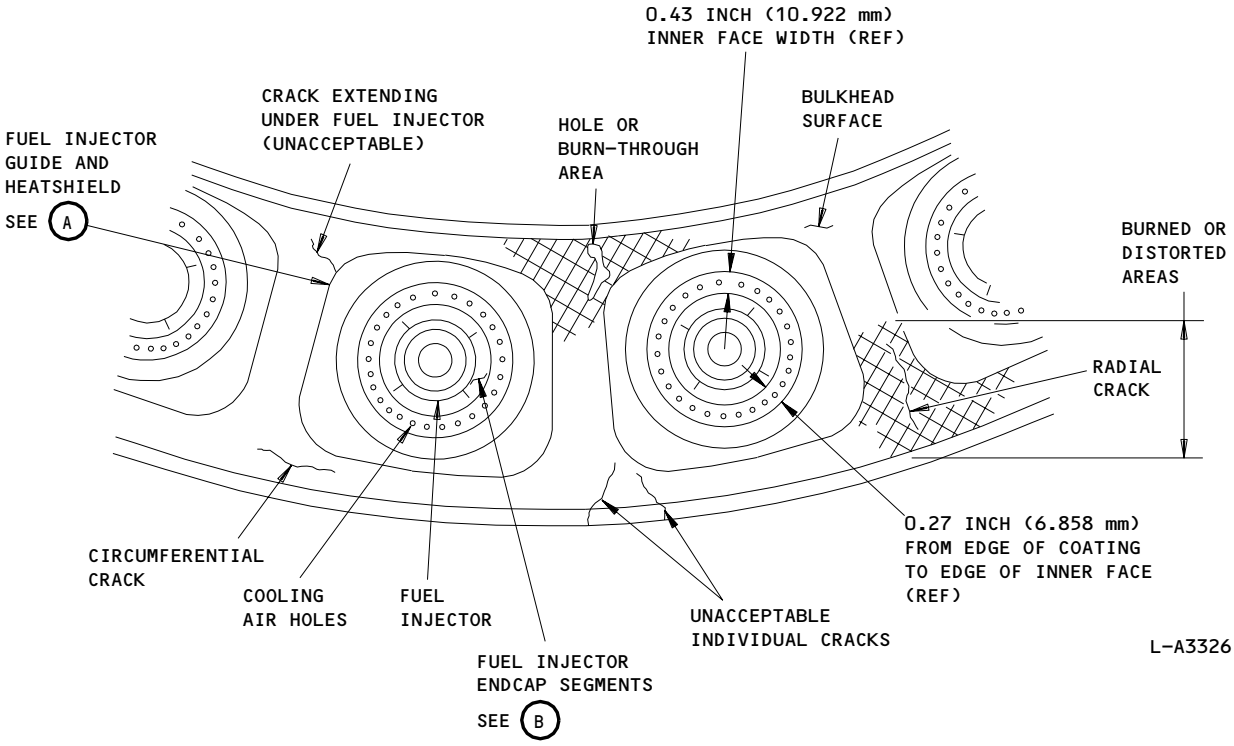
VIEW LOOKING CIRCUMFERENTIALLY

L-A3325



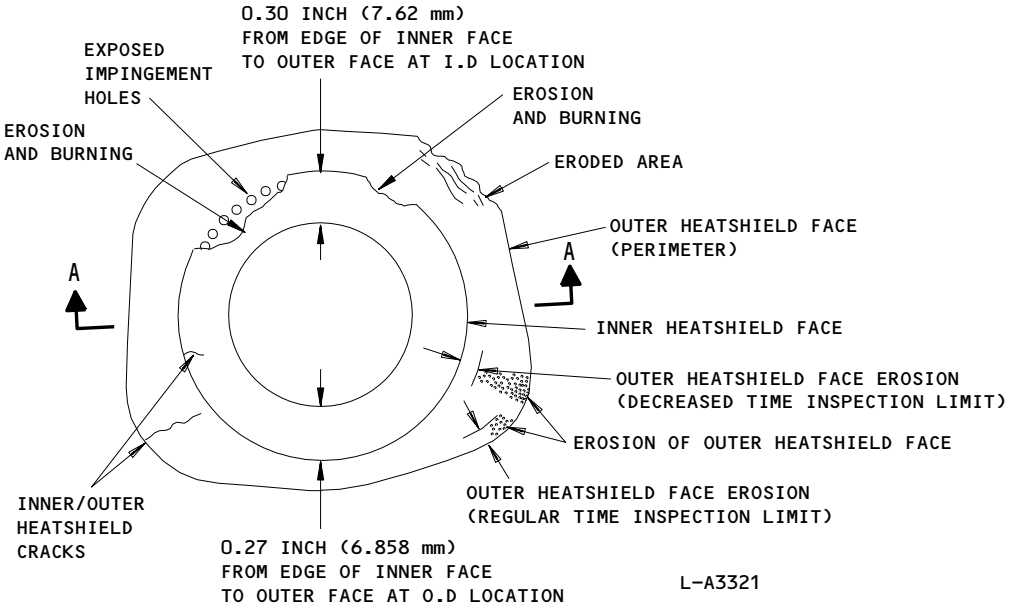
L-A3327

Inner and Outer Combustion Chamber Distress
Figure 613 (Sheet 3)



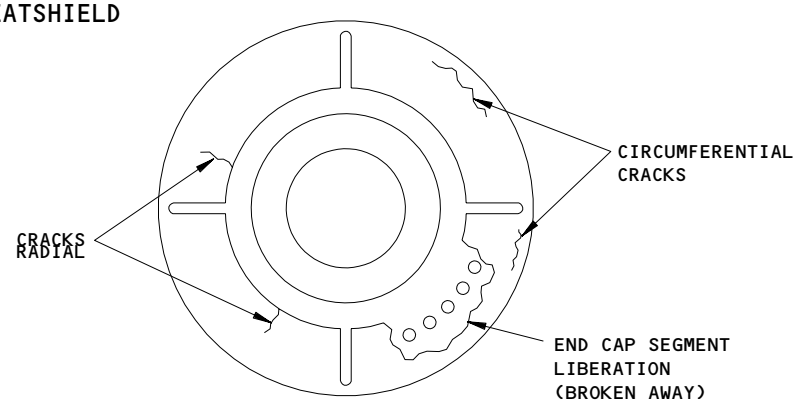
COMBUSTION CHAMBER BULKHEAD

Combustion Chamber Bulkhead and Fuel Injector Guide Heatshield Distress
Figure 614 (Sheet 1)



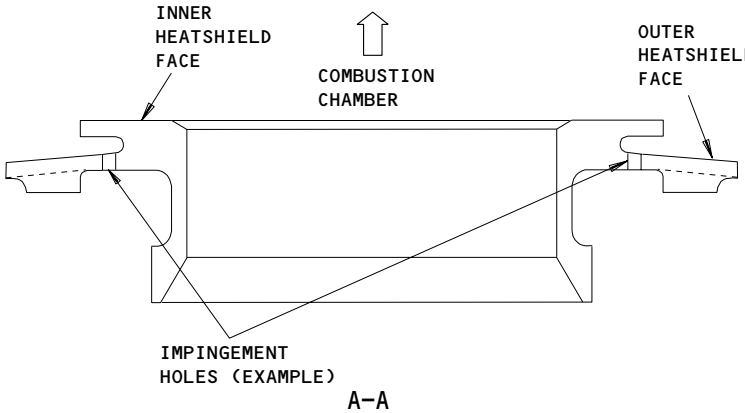
FUEL INJECTOR GUIDE HEATSHIELD

A



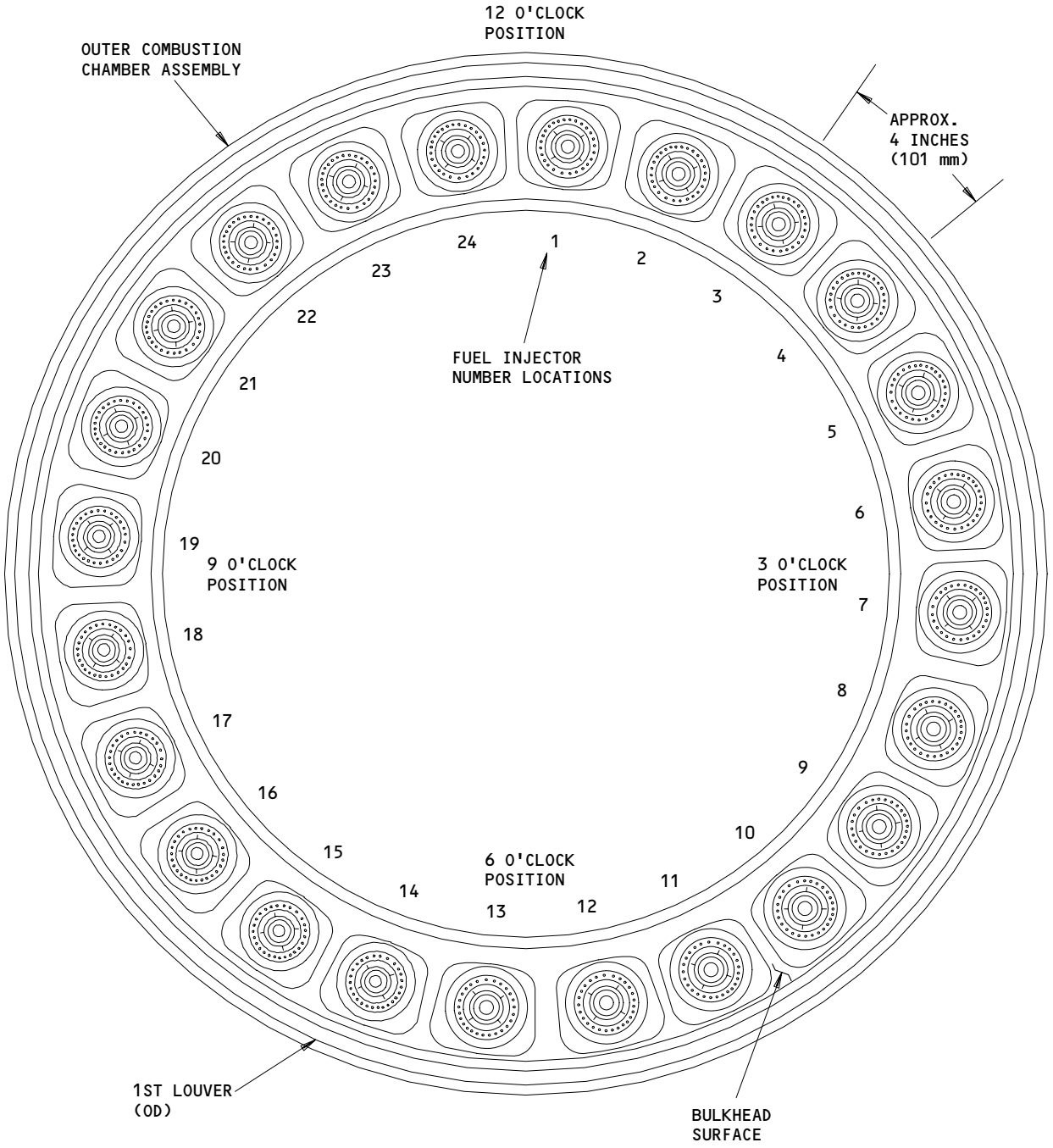
FUEL INJECTOR ENDCAP SEGMENTS

B



A-A

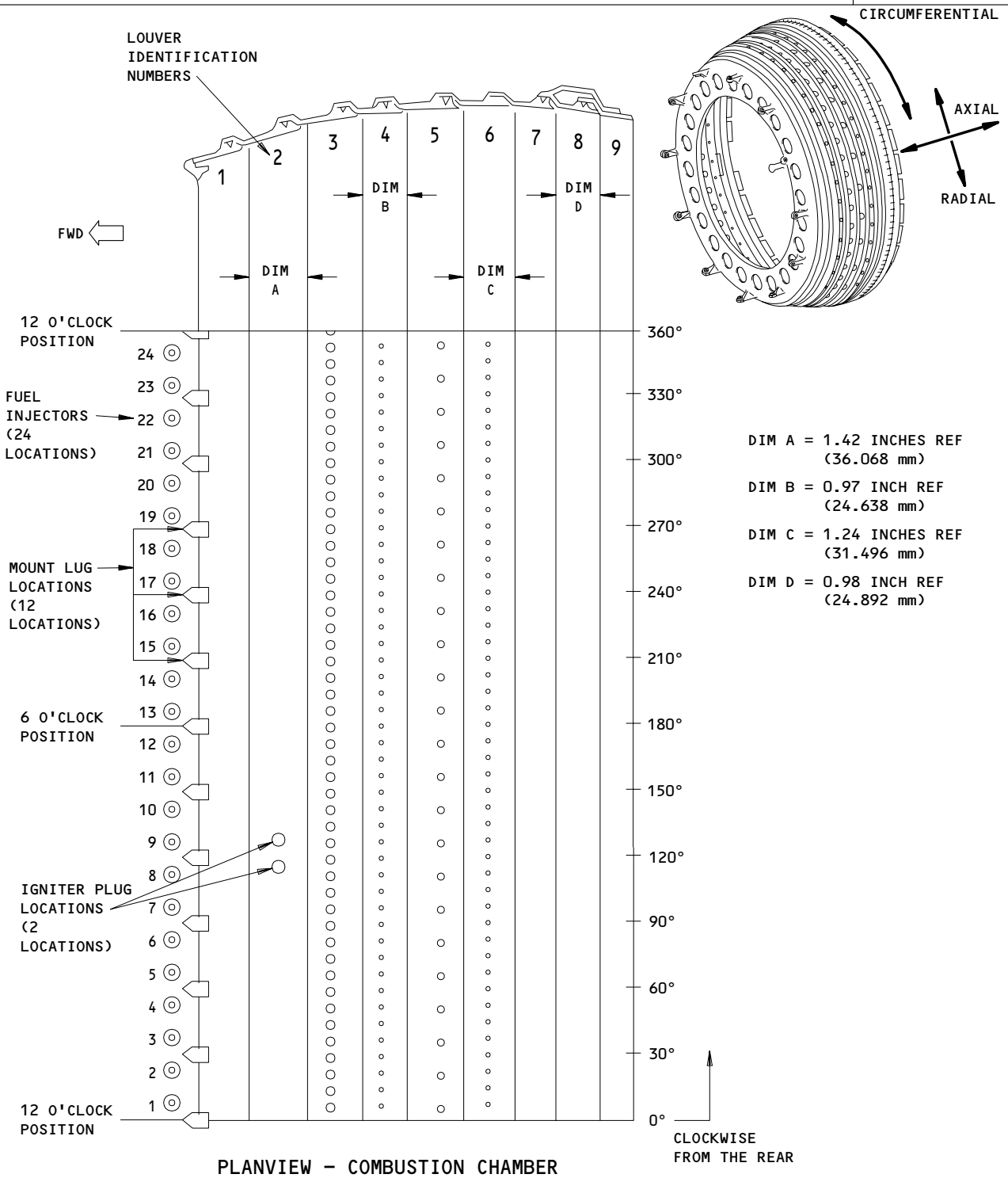
Combustion Chamber Bulkhead and Fuel Injector Guide Heatshield Distress
Figure 614 (Sheet 2)



VIEW IN THE FORWARD DIRECTION

L-A3334

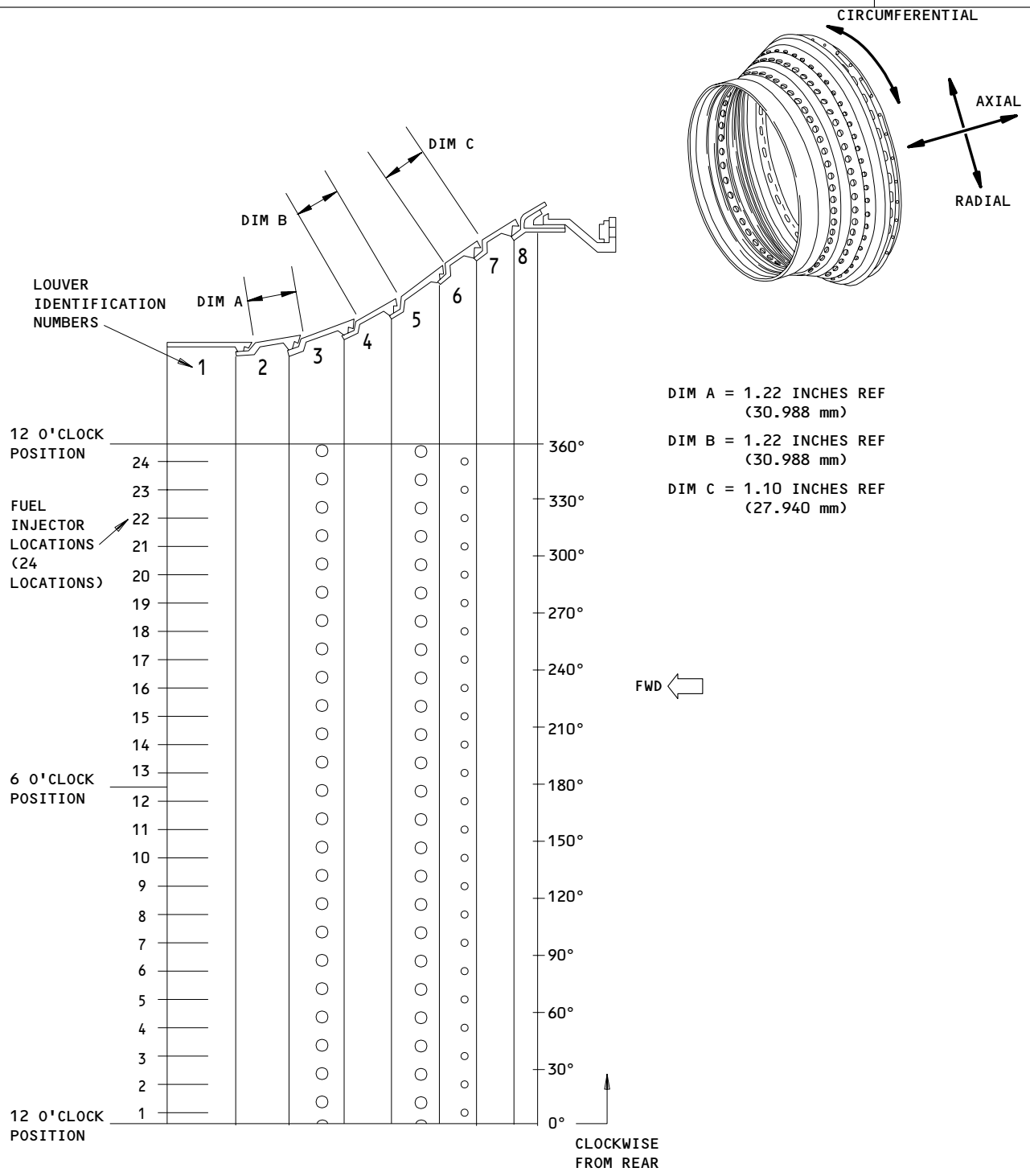
Outer Burner Liner Bulkhead and Fuel Injectors
Figure 615



PLANVIEW – COMBUSTION CHAMBER INTERNAL SURFACE

L-A3337
(0597)

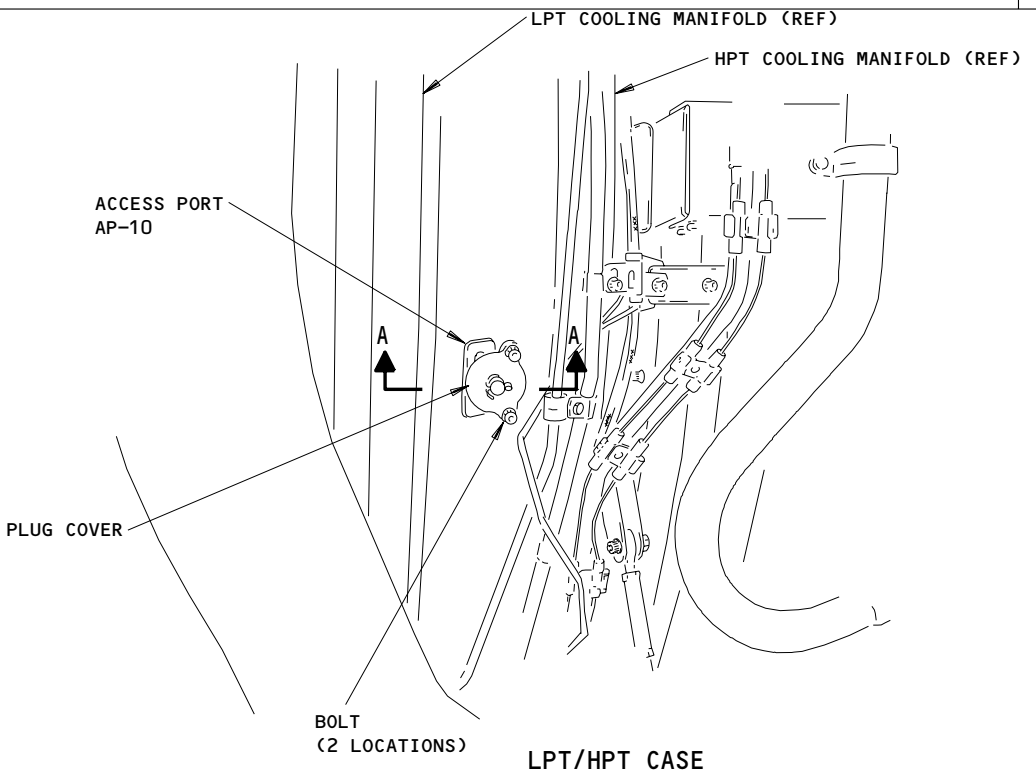
Outer Combustion Chamber
Figure 616



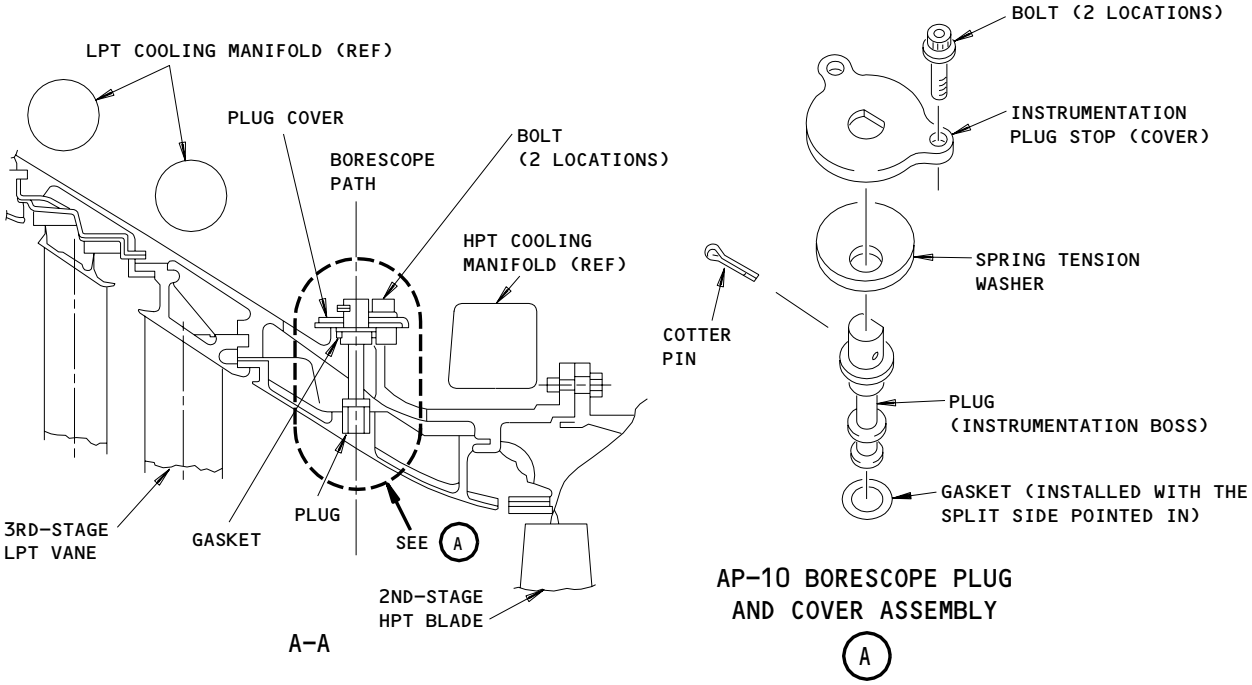
PLANVIEW – COMBUSTION CHAMBER INTERNAL SURFACE

L-A3331
(0597)

Inner Combustion Chamber
Figure 617



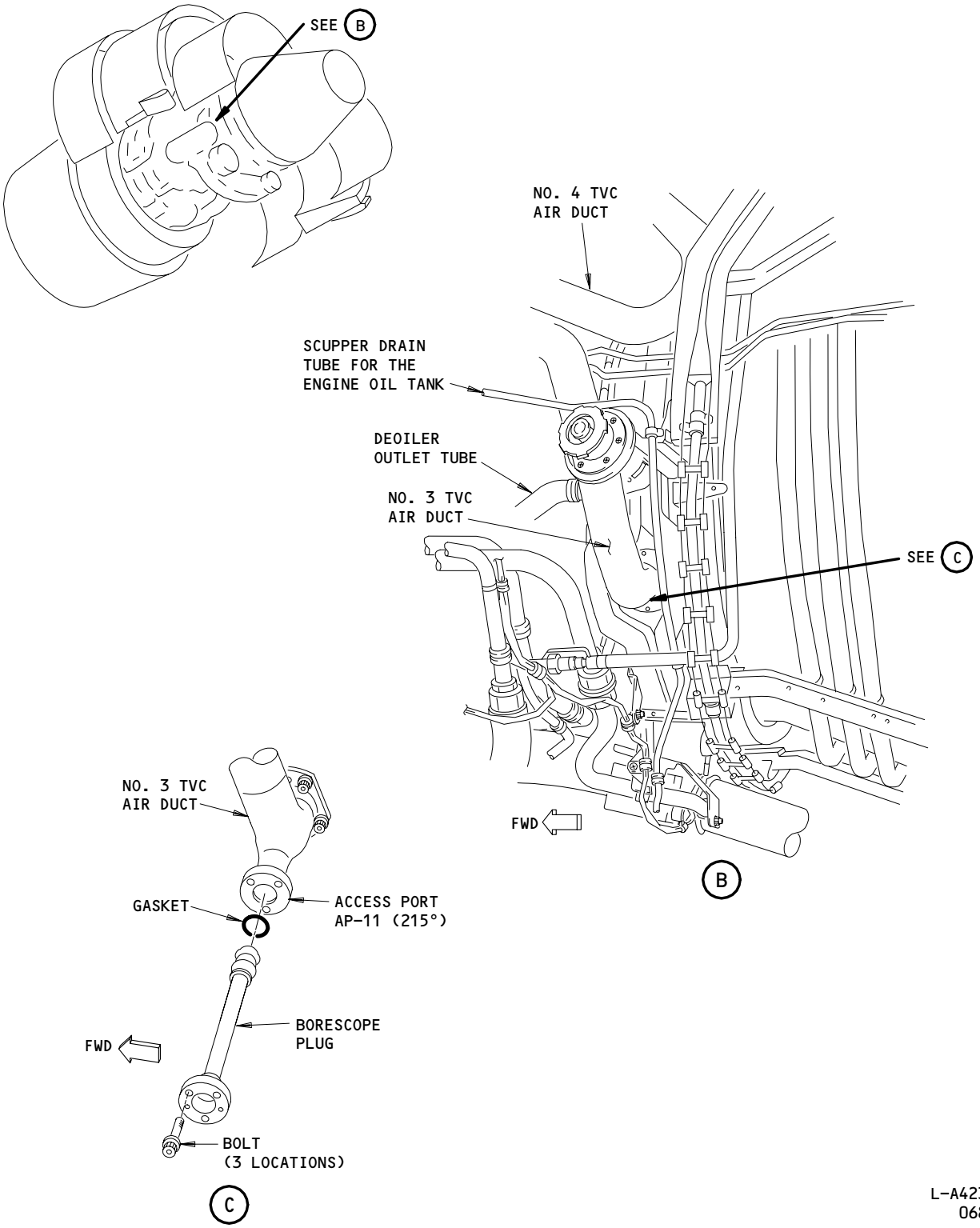
LPT/HPT CASE



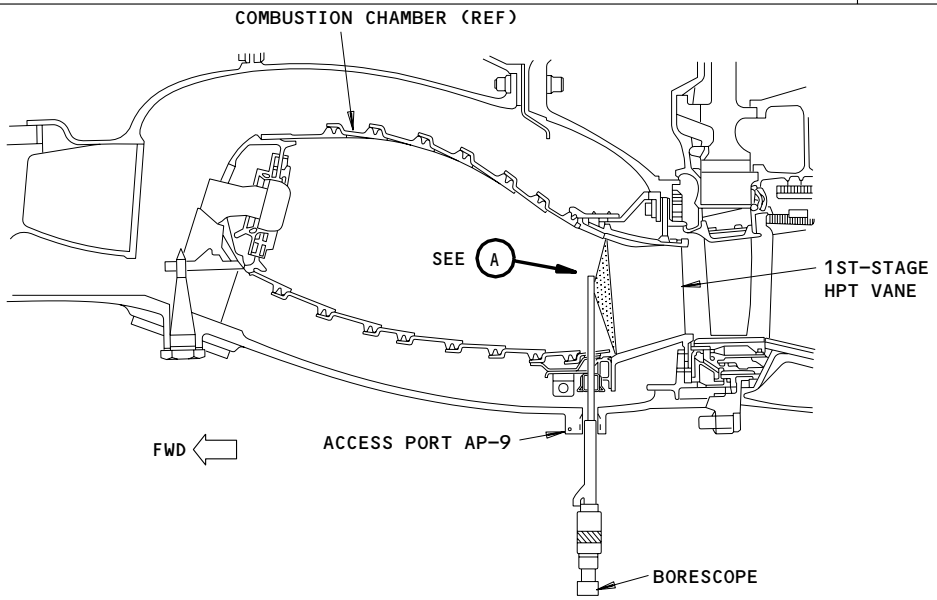
A-A

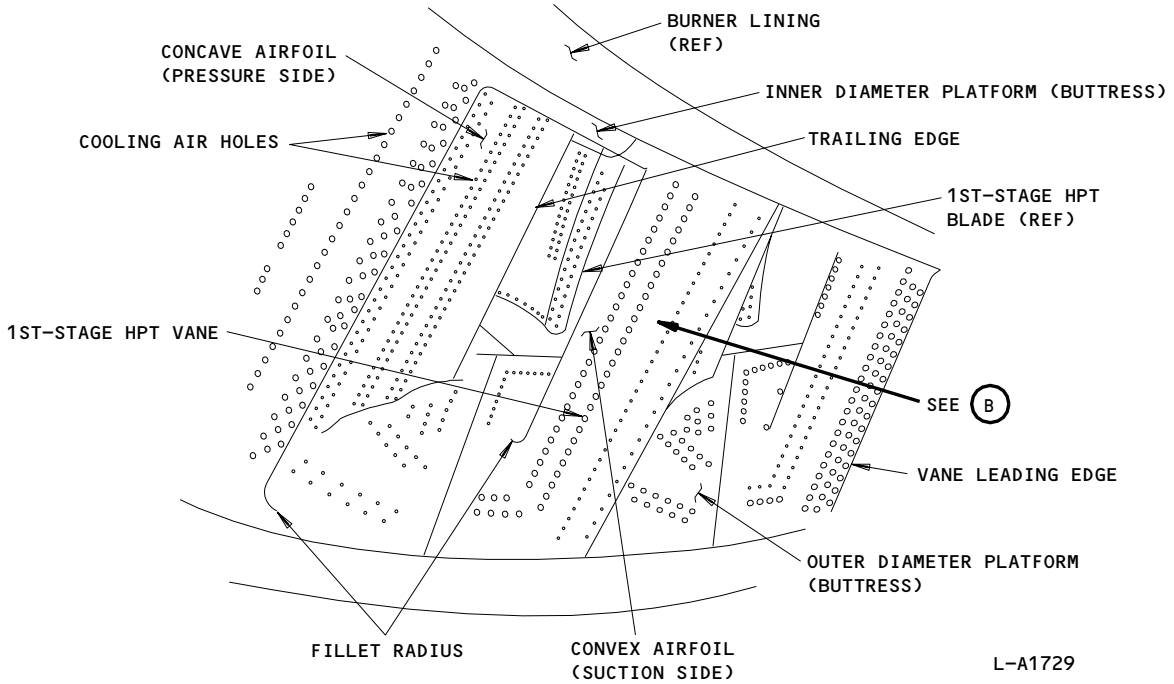
AP-10 BORESCOPE PLUG
AND COVER ASSEMBLY
A

HPT/LPT Access Port Locations
Figure 618 (Sheet 1)



HPT/LPT Access Port Locations
Figure 618 (Sheet 2)



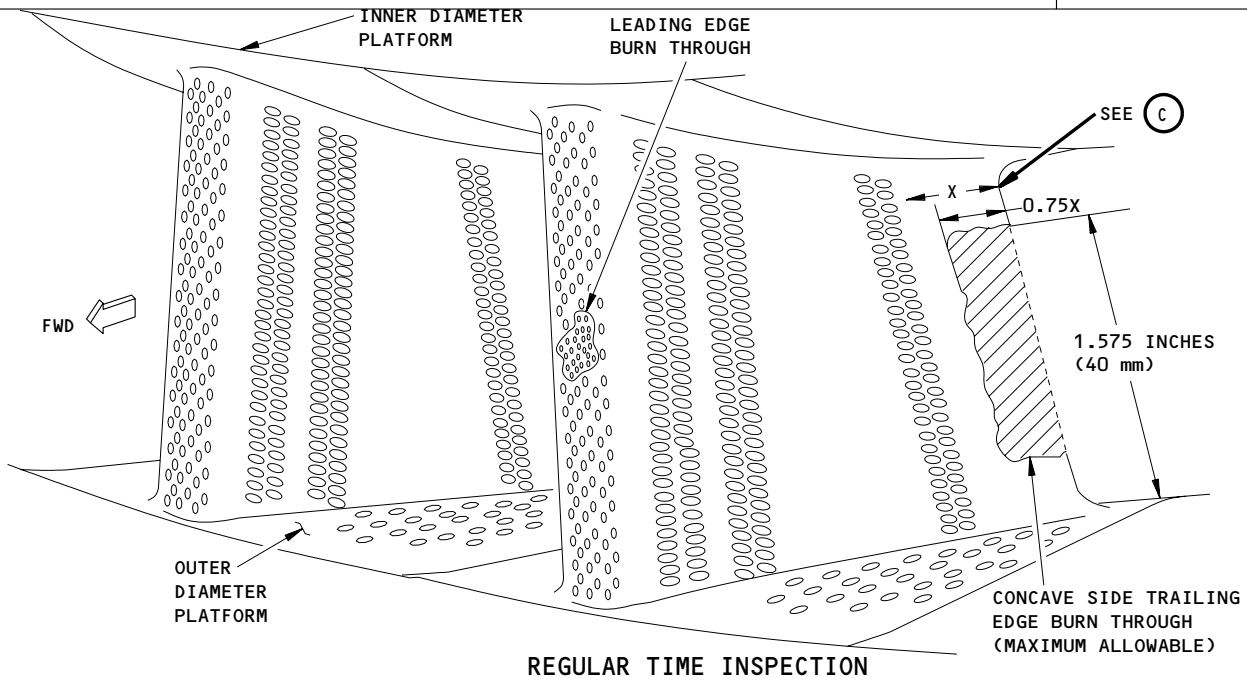


VIEW OF 1ST-STAGE HPT VANES THROUGH BORESCOPE

A

L-A1729 (0192)

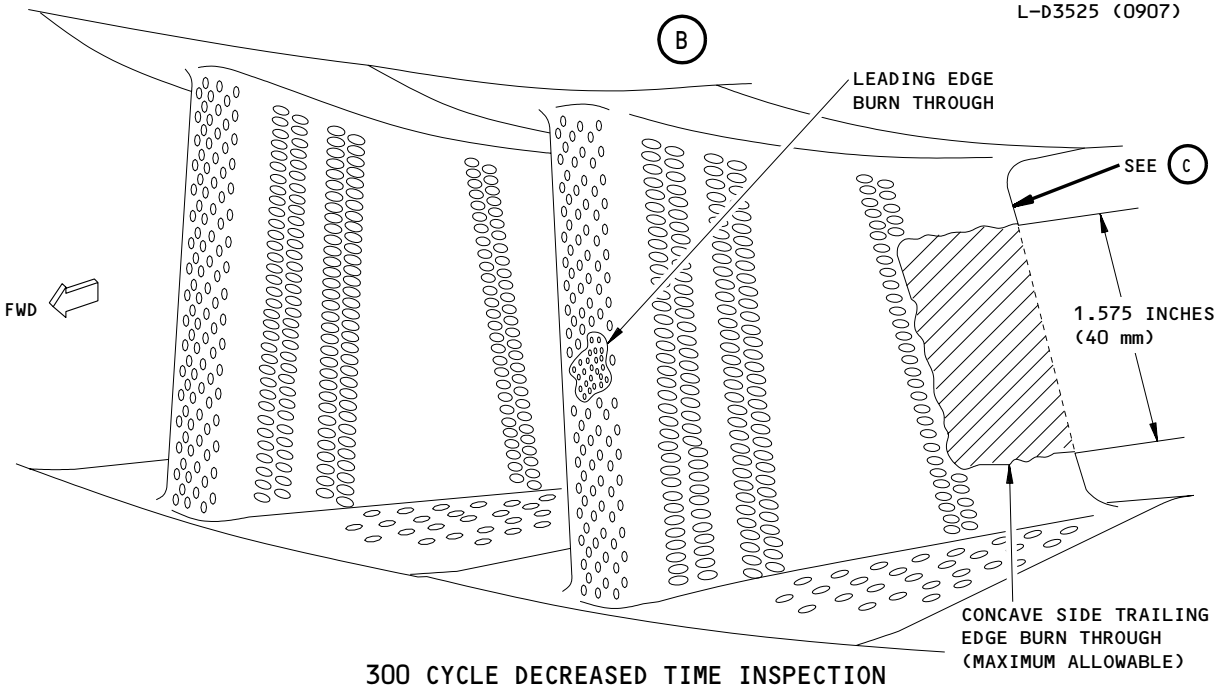
1st-Stage HPT Vane Continue-In-Service Limits
Figure 619 (Sheet 1)



REGULAR TIME INSPECTION
(CONCAVE AIRFOIL SURFACE)

L-D3525 (0907)

B

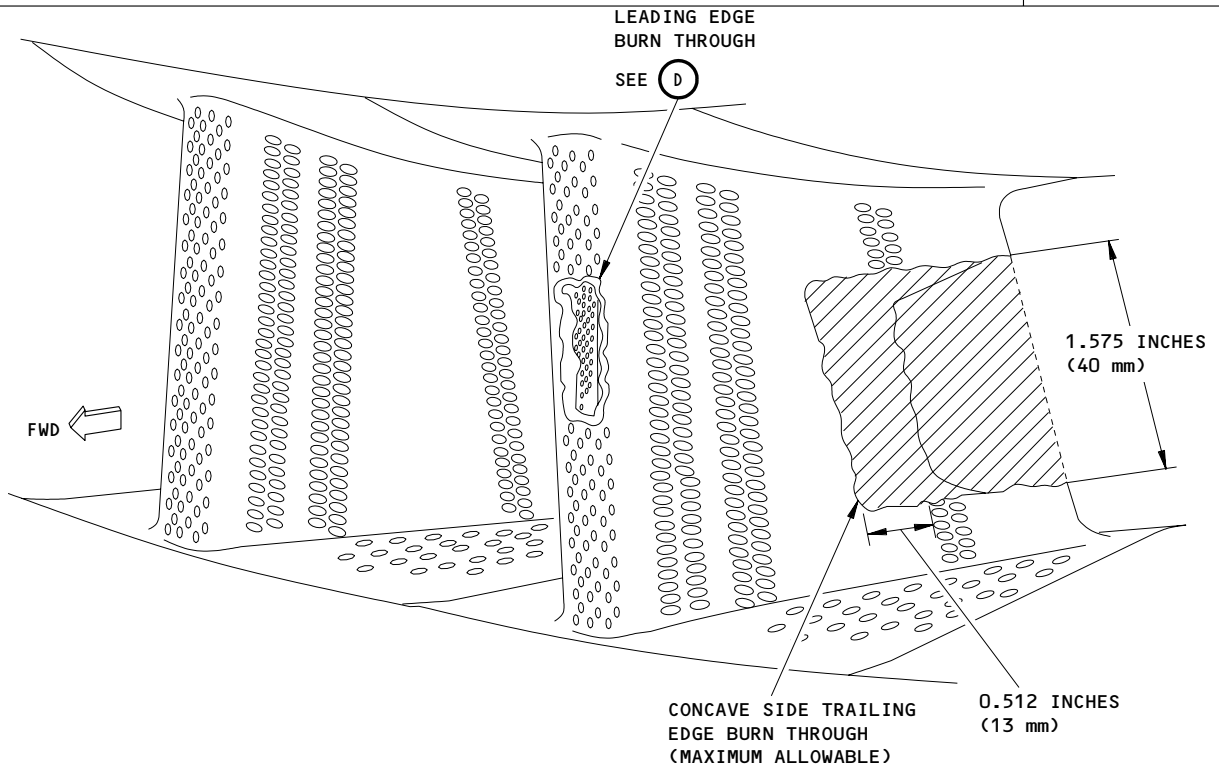


300 CYCLE DECREASED TIME INSPECTION
(CONCAVE AIRFOIL SURFACE)

B

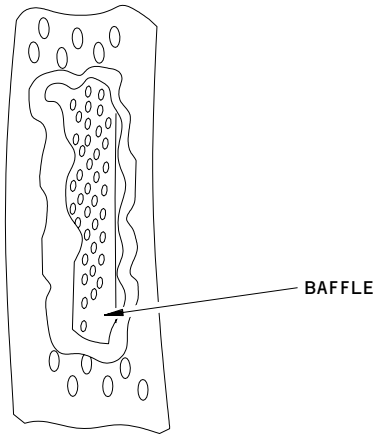
L-D3526 (0907)

1st-Stage HPT Vane Continue-In-Service Limits
Figure 619 (Sheet 2)



150 CYCLE DECREASED TIME INSPECTION
(CONCAVE AIRFOIL SURFACE)

B

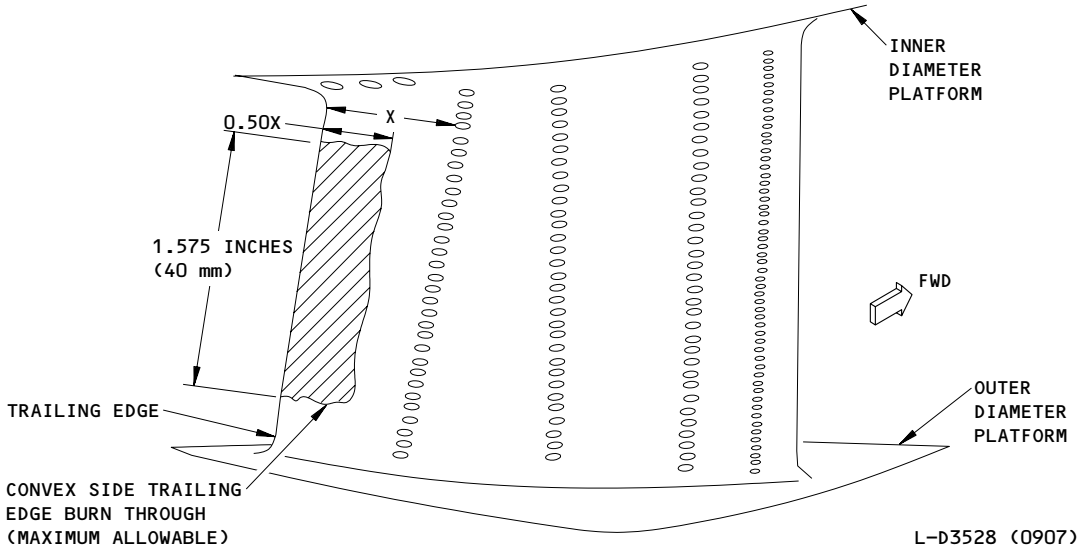


LEADING EDGE BURN THROUGH

D

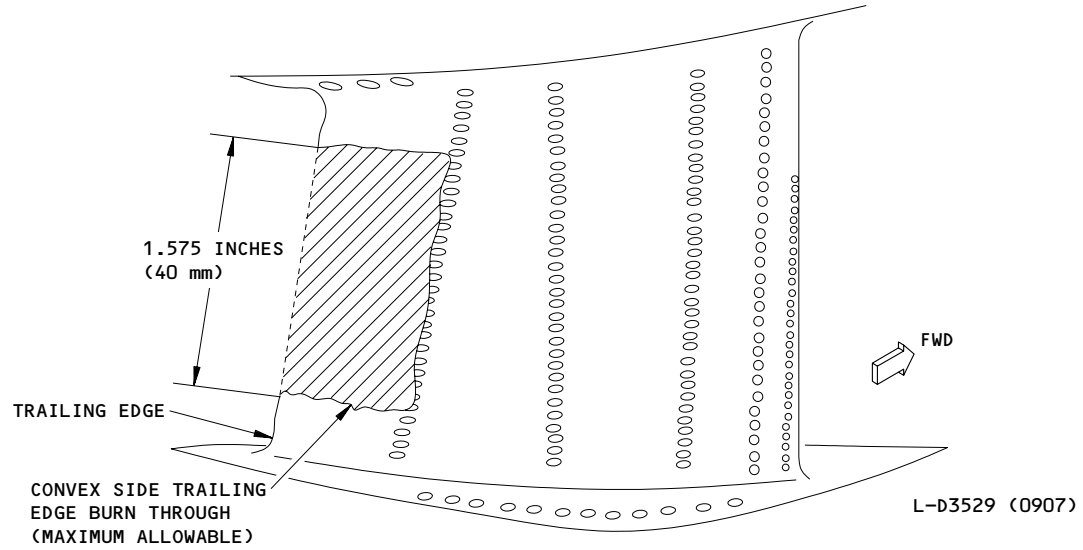
L-D3527 (0907) PWV

1st-Stage HPT Vane Continue-In-Service Limits
Figure 619 (Sheet 3)



RETURN TIME INSPECTION
(CONVEX AIRFOIL SURFACE)

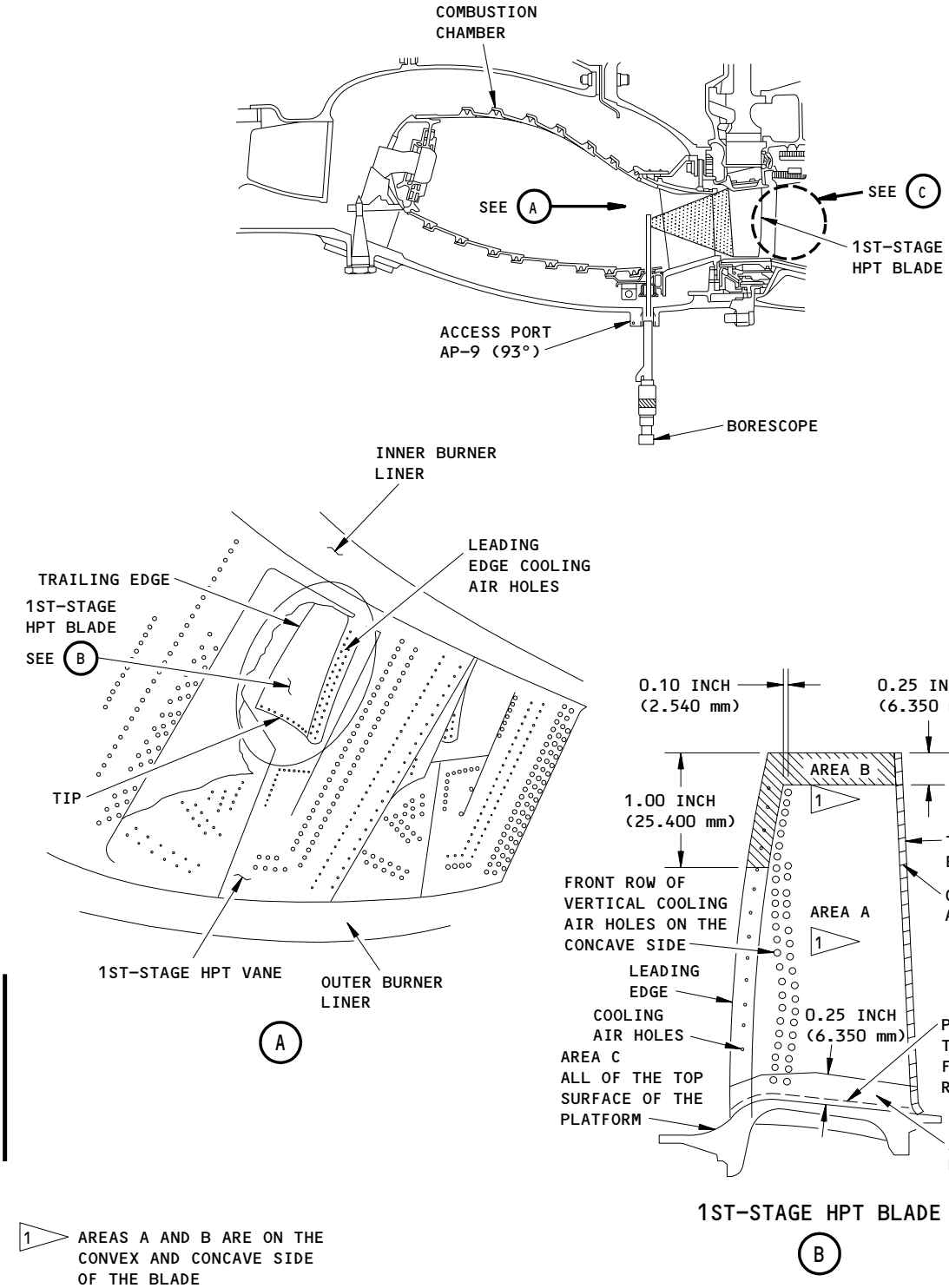
C



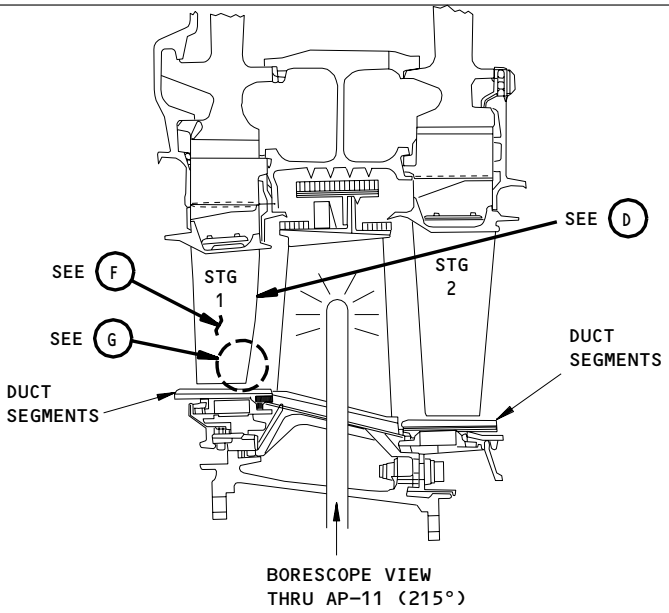
150 CYCLE DECREASED TIME INSPECTION
(CONVEX AIRFOIL SURFACE)

C

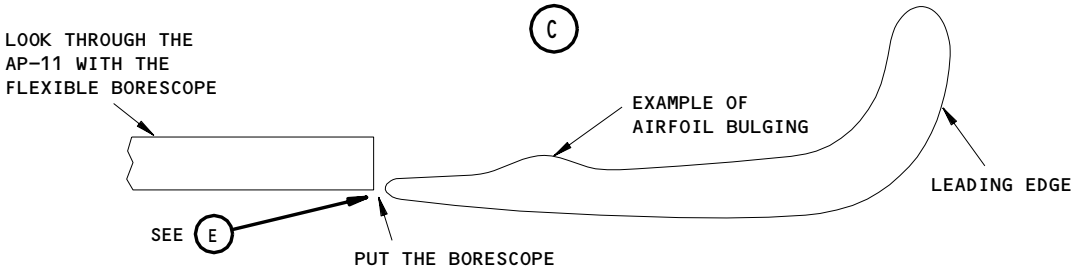
1st-Stage HPT Vane Continue-In-Service Limits
Figure 619 (Sheet 4)



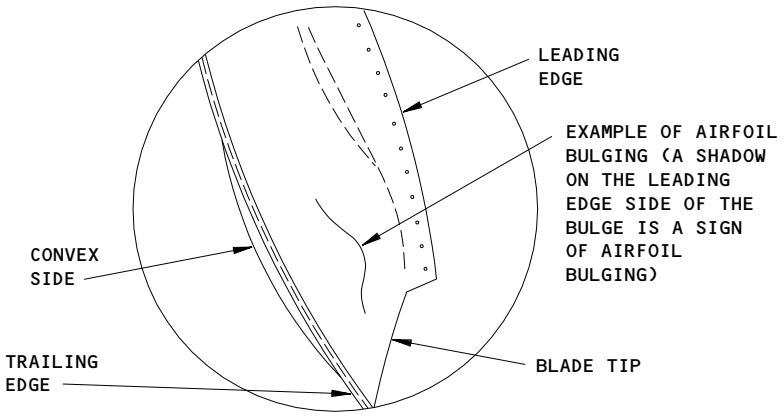
1st-Stage HPT Blade Continue-In-Service Limits
Figure 620 (Sheet 1)



C



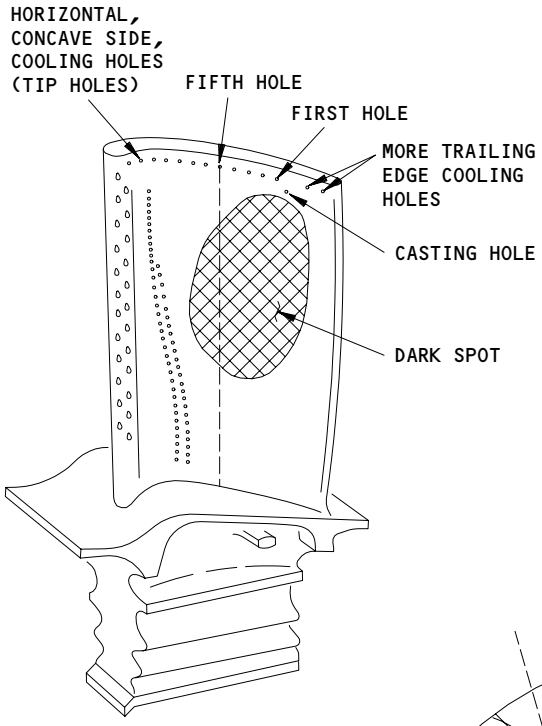
D



E

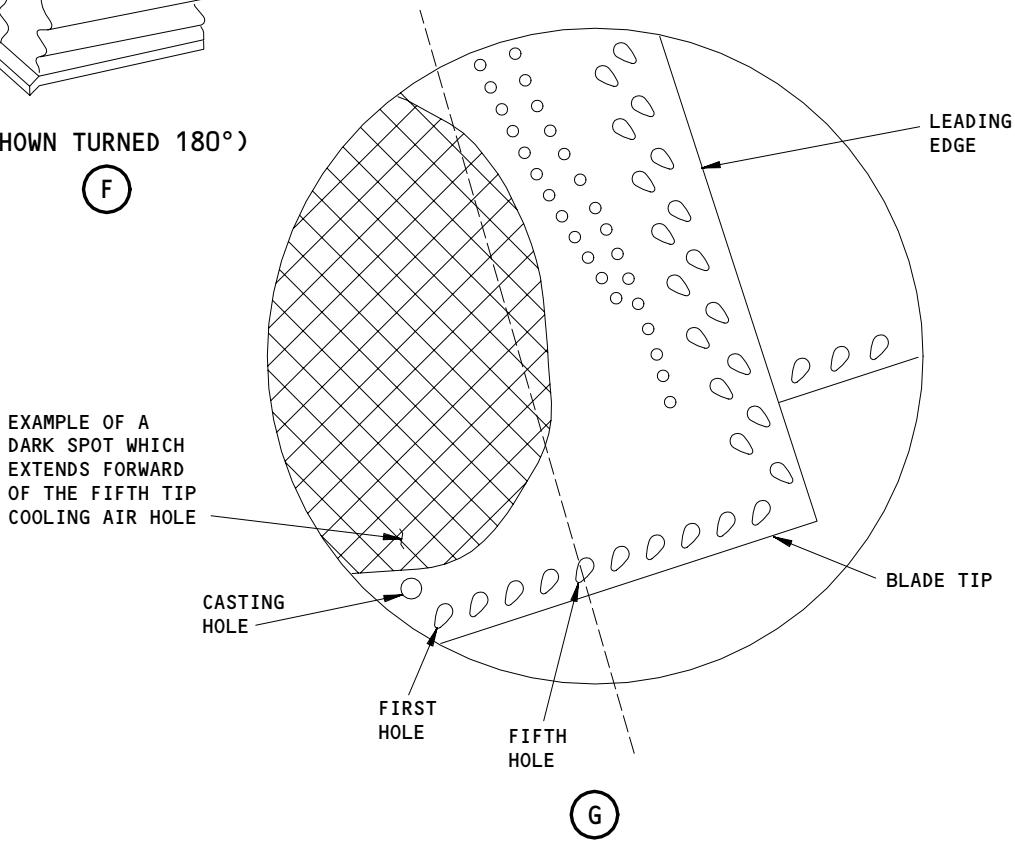
L-A7731 (0000)

1st-Stage HPT Blade Continue-In-Service Limits
Figure 620 (Sheet 2)



(SHOWN TURNED 180°)

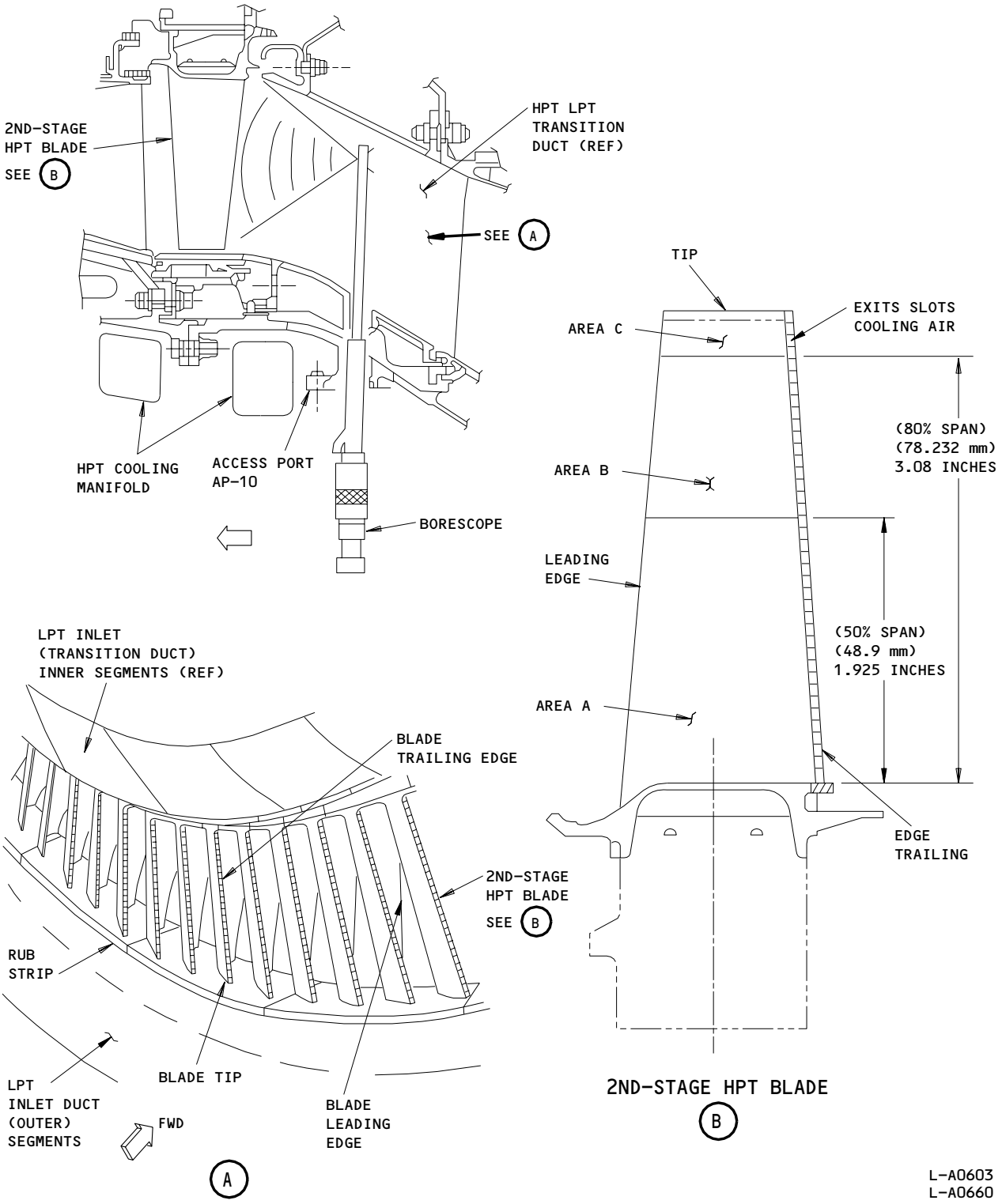
F



G

L-A7732 (0000)

1st-Stage HPT Blade Continue-In-Service Limits
figure 620 (Sheet 3)



2nd-Stage HPT Blade Continue-In-Service Limits
Figure 621

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-410-C1-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		00250 CYC	10101	006	AUG 22/09

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
BORESCOPE	COMBUSTION LINER/HP AND LP TURBINES		ALL	4000

ZONES	ACCESS PANELS
421	427AL 428AR

MECH	INSP	MPD ITEM NUMBER

BORESCOPE CHECK THE ENGINE 2 INNER AND OUTER COMBUSTION CHAMBER ASSEMBLIES AND FIRST STAGE TURBINE NOZZLE GUIDE VANES (CLUSTERS). 72-00-00-6A N72-00-00-6A N72-00-00-6B N72-00-00-6C

BORESCOPE CHECK THE ENGINE 2 STAGE 1 AND STAGE 2 HIGH PRESSURE TURBINE BLADES. 72-00-00-6B

BORESCOPE CHECK THE ENGINE 2 STAGE 3 LOW PRESSURE TURBINE NOZZLE GUIDE VANES. 72-00-00-6C

NOTE: THE FIELD OF VIEW PROVIDED BY INSPECTION PORT AP10 DOES NOT ALLOW A FULL VIEW OF ALL THIRD STAGE NOZZLE GUIDE VANES. HOWEVER, THOSE VANES WHICH CAN BE VIEWED ARE SUFFICIENT TO EVALUATE THE CONDITION OF THE THIRD STAGE NOZZLE GUIDE VANES.

ENGINE GASPATH - INSPECTION/CHECK

1. Prepare for the Borescope Inspection

A. General

(1) This procedure gives the equipment and steps that are necessary to prepare for the borescope inspections.

(2) Refer to Fig. 605A for installation data on each borescope access port.

B. Equipment

(1) Borescope Inspection Equipment - Specification CTE 6181, Support Equipment Engineering, Pratt & Whitney Commercial Products Division, 400 Main Street, East Hartford, CT 06108, USA MS 11803

NOTE: Specification CTE 6181 gives the equipment and related hardware, such as power source, light cables, adapter, that is required during borescope inspections. This specification sets the quality and functional standards for this equipment. This borescope equipment is recommended:

(a) Low magnification rigid borescope. . . . . AP2-7, 9 (optional for THRU FAN)
(0.270 inch/6.8 mm barrel dia max)

(b) High magnification rigid borescope. AP8, 11
(0.444 inch/11.3 mm barrel dia max)

(c) Flexible borescope . . . . AP-1, THRU FAN (optional for AP2-7)
(0.270 inch/6.8 mm cable dia max)

(2) Optional borescope equipment and sizes that make the operation of the borescope better and easier are also shown in CTE 6181. This equipment includes clamps that hold the borescope in position and optical video equipment. This video equipment helps you see and make a videotape record of the borescope procedure for a second, more full, examination.

(a) Borescope equipment is available with rigid or flexible probes that have different operation lengths and fields of vision. You can use closed circuit television with some borescopes.

(b) The equipment that follows is from Olympus Corp., IFD 4 Nevada Drive, Lake Success, NY 11042, and agrees with specification CTE 7181. You can get equivalent equipment from American Cystoscope Makers Inc., Industrial Division, 300 Stillwater Ave., Stamford, CT 06902, or Richard Wolf Medical Instruments Corp., 7046 Lydon Ave., Rosemont, IL 60018.

1) Rigid Borescope - Olympus Model C080-048-090-50, 8 mm diameter, 48 cm operation length, lateral view, 50-degree field of view

2) Rigid Borescope - Olympus Model C100-037-090-50, 10 mm diameter, 37 cm operation length, lateral view, 50-degree field of view

3) Eyepiece, right angle adapter - Olympus Model KMR-90/4

4) Flexible Borescope - Olympus Model IF8D3-15, 8 mm diameter, 125 cm operation length, direct view, 40-degree field of view

5) Distal right angle adapter - Olympus Model IF8D3-A40S, 40-degree field of view

6) Light Source - Olympus Model ILK-4, 150 Watt Halogen

7) Light Cable - Olympus Model 2950B High Intensity Light Cable, 6 mm diameter, 72 inch length

8) Flexible Borescope - Olympus Model PF27-7, 6.8 mm (0.27 inch) diameter, 130 cm operation length, direct view, 70-degree field of view, Articulating Tip

9) Flexible Borescope - Olympus Model IF6D3-20, 6 mm diameter, 180 cm operation length, direct view, 65-degree field of view, Articulating Tip

(c) This television system is available from Westinghouse Electronic Tube Division, P.O. Box 284, Elmira, New York 14902

1) Mobile Video Inspection Equipment - Model No. M616W, closed circuit television camera system.

NOTE: This video inspection equipment is used with Richard Wolf Corp. Borescope Models FIB 750, and FIB 760.

C. Reference

(1) AMM 71-11-04/201, Fan Cowl Panels

(2) AMM 71-11-06/201, Core Cowl Panels

(3) AMM 78-31-00/201, Thrust Reverser System

D. Access

(1) Location Zones
411 No. 1 Power Plant
421 No. 2 Power Plant

E. Prepare for the Borescope Inspection.

(1) Get the applicable borescope equipment.

(2) For the left engine, open this circuit breaker on the overhead circuit breaker panel, P11, and attach a DO-NOT-CLOSE tag:

(a) 11D19, ENGINE START CONT L

(3) For the right engine, open this circuit breaker on the overhead circuit breaker panel, P11, and attach a DO-NOT-CLOSE tag:

MECH | INSP

(a) 11D20, ENGINE START CONT R

(4) Open the fan cowl panel (AMM 71-11-04/201).

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

(6) Open the core cowl panel (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(7) Open the thrust reverser (AMM 78-31-00/201).

2. Combustion Chamber Inspection

A. General

(1) This inspection is the visual check of the Combustion Chamber: the inner and outer combustion chamber assemblies, the bulkhead, and the heatshield of the fuel injector guide.

(2) The limits given in this section will help you know if the engine can continue to operate or if you must remove and repair it.

B. Equipment

(1) AP-8 Gasket - PWA 673049 (6 are necessary)

C. Consumable Materials

(1) D00137 Engine Oil - PWA 521B

(2) D00244 Antiseize compound, high temperature - Silver Goop

D. Do the Combustion Chamber Inspection

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CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.

(1) Do this procedure: Prepare for the Borescope Inspection.

(2) Remove the plugs from the AP-8 access ports of the combustion chamber; refer to Fig. 605 and 611 for access port locations and borescope data.

NOTE: Six AP-8 plugs are on the diffuser case at 45, 128, 172, 225, 277, and 338 degrees clockwise from top center of engine when you look forward.

WARNING: DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND CIRCUMFERENTIAL CUT HOLES, FRAYING OR BROKEN HOLES IN THE EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE CONDITIONS CAN CAUSE INJURY TO PERSONS.

CAUTION: MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW 150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

(3) Put the borescope through each access port to examine the condition of the combustion chamber.

NOTE: The borescope goes into the combustion chamber through the dilution air holes.

MECH | INSP

(4) Compare the damage as identified in Figs. 612, 613, and 614 with the continue-in-service limits shown in Table 602A and Table 602B.

NOTE: The frequency of the regular time inspection that is referred to in the tables is from our Maintenance Planning Document. The frequency of the decreased time inspection is two times the frequency of the regular time inspection. In other words, the interval between decreased time inspections is half the interval of regular time inspections.

NOTE: The maximum limits for the regular time and decreased time inspections were calculated to have the qualities that follow:
- During usual conditions of operation, permitted damage will not become unsatisfactory before the time for the subsequent applicable inspection.
- Usually, higher damage limits are permitted for the decreased time inspection because that inspection is done more frequently.
- Damage and deterioration in some areas change the performance of the engine very quickly, which makes a higher limit (for the decreased time inspection) not possible. For damage in these areas, the limits for the decreased and regular time inspections are equal.

(a) These conditions of damage occur in the inner and outer combustion chamber assembly:

1) The conditions that follow are examples of burned or released material:

a) Discolored or distorted areas on the louver

b) Areas where louver lip material is gone because of too much heat.

2) An axial series of damaged louvers, in which each louver has burned or released material, is an example of a burned stripe.

3) A hole is because of too much heat and goes fully through the combustion chamber wall; holes frequently occur in burned stripes.

(b) Refer to Figs. 615, 616, and 617 to help you keep a record of the damage in the combustion chamber assembly.

NOTE: You can write on copies of these figures to keep a record of the damage.

(c) If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.

Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Open Holes that are Burned Through	Four open holes in each assembly.	Six open holes in each assembly.
	The maximum diameter of each hole is 0.500 inch (12.700 mm) 0.19 square inch (123 square mm). There must be at least 6 inches (152.400 mm) of material without damage, between each hole.	
Burned Marks, Distortion, Louver Lip Material that is gone, or Burned Stripes	All quantities of burned marks, distortion, or louver lip material that is gone Damage that is on no more than three adjacent louvers. This is the indication of the start of a burned stripe.	Axial burned stripes that are on more than three adjacent louvers. Refer to the applicable condition found in this table for limits for opened hole size, crack length, and the connection of cracks.
Burned Areas, Areas where Material is Gone, or a Deterioration of the Surface Layer.	All quantities. NOTE: If you find much damage or many areas where the material is gone, examine the turbine airfoils for damage. This is most important for the last louver.	

Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Nicks in the Surface Layer, Thermal Barrier Ceramic Layer that is Gone.	All quantities. NOTE: When the surface layer is gone, the rate of the Combustion Chamber deterioration will increase.	
Louver Gap Decrease and and Burned Marks	All quantities. NOTE: Too much of a Gap decrease will increase the rate of downstream deterioration in the Combustion Chamber.	
Bends, Buckles, or Distortion on the Louvers	All quantities.	

Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	NOTE: For axial cracks that enter a combustor, dilution, or ignition hole, the diameter of the manufactured hole does not need to be added to determine the crack length until the crack is seen exiting from the opposite side of the hole.	
Axial Cracks that are confined to one louver	All cracks that are not more than 0.75 inch (19.050 mm) in length. Cracks that go completely across the No.9 louver of the Outer Burner Lining, if there is not less than 2.5 inches (63.5 mm) circumferentially between each one. Cracks can completely traverse one louver, but must be separated circumferentially by 6.0 inches (152.40 mm) minimum.	Maximum of 2 cracks every 6.0 inch (152.040 mm) of louver material. Cracks must be separated circumferentially by 0.75 inch (19.05 mm). Maximum of 3 cracks every 6.0 inches (152.40 mm) of louver material. Cracks must be separated circumferentially by 1.5 inches (38.10 mm).

Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	NOTE: If these limits are exceeded, contact Pratt & Whitney for recommendation. Cracks can completely traverse on Outer Burner Lining No. 9 (rear most) louver, but must be separated circumferentially by 2.5 inches (63.5 mm) minimum. On the Outer Burner Lining (rear most), the minimum separation of cracks must be 2.5 inches (63.5 mm). NOTE: An individual crack is a crack only to one louver.	

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Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Continuous Axial Cracks that go completely through one or more louvers	Axial cracks which go completely through more than one louver must be inspected with the decreased time inspection.	Axial cracks which go completely through more than three adjacent louvers are not permitted.
	If you can do an inspection of the outside diameter (OD) (cold side) of the louver, and the cracks do not go through the edge which overlaps the adjacent louver, the limits for axial cracks that are confined to one louver are applicable. If you cannot do an inspection of the OD (cold side) of the louver, the limits for continuous axial cracks that go through one or more louvers are applicable. NOTE: If the outer (cold side) inspection shows that the cracks do not go through the louver knuckle area, the cracks are classified as individual axial cracks. Use the individual axial crack limits. Without the outer side (cold side) inspection, the cracks must be classified as continous cracks. Examine the continuous axial cracks with decreased distance as follows: 1. Two louver crack, if the measured crack width on each of the adjacent louver is more than 0.060 inch (1.524 mm) wide and/or louver wall deformation or surface mismatch is more than 0.060 inch (1.524 mm). Individual crack separation limits apply for two louver cracks. 2. Three louver crack, if the measured crack width on each of the three adjacent louvers is more than 0.060 inch (1.524 mm) wide and/or louver wall deformation, or surface mismatch is more than 0.060 inch (1.524 mm). Three louver cracks must be apart circumferentially by 20.0 inches (508.0 mm) minimum. 3. Four louver crack, if the measured crack width on each of the three adjacent louvers is more than 0.060 inch (1.524 mm) wide but less than 0.150 inch (3.810 mm), and/or louver wall deformation surface mismatch is more than 0.060 inch (1.524 mm) but less than 0.150 inch (3.810 mm). Engine must be removed off from the wing within 40 hours.	

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Table 602A

CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	4. More than three louver crack, engine must be removed immediately if the crack is greater than 0.150 inch (3.810 mm) wide, and/or louver wall deformation or surface mismatch is greater than 0.150 inch (3.810 mm). NOTE: Use the hot side inspection only if the cold side inspection is not easy to access. This inspection is used to find if a knuckle between two louvers is cracked by looking through a borescope at the inner (hot side) surface of the burner rather than the outer (cold side) surface. To use the inner surface inspection method, all cracked surfaces in the continuous axial crack must be inspected for crack width. If all louver cracks are less than 0.060 inch (1.524 mm), it must be classified as individual cracks. If one after the other have crack width more than 0.060 inch (1.524 mm), it should be classified as a three louver crack. Cracks are classified as an individual axial cracks, if they do not go through the louver knuckle area. An outer (cold side) inspection is an optional to check, if the cracks go through the louver knuckle area. If the outer (cold side) inspection shows that the cracks do not go through the louver knuckle area, then the cracks are classified as individual axial cracks. NOTE: As a burn streak becomes longer, the louver metal can burn, twist and fall away from the surface of the louver. This can cause axial cracks on one louver to continue to burn onto the adjacent louvers, but they are not always easily seen. That is why it is best to do an OD (cold side) inspection, if you can.	

Table 602A		
CONDITION FOUND	INNER AND OUTER COMBUSTION CHAMBER ASSSEMBLY (Except Bulkhead) CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Circumferen-tial Cracks	Only ones in the lip area are permitted. The maximum length for the lip cracks is 2.0 inches (50.800 mm).	
Connection of Axial and Circumferen-tial Cracks	The only ones permitted are in the lip area. Louver lip material that is gone because of the connection of axial and cicumferential cracks is permitted. The maximum length of circumferential crack in lip area is 2 inches (50.8 mm).	
Connection of Axial Cracks and Burned Holes	Refer to the limits for Burn-Through (Open Holes) and Axial Cracks. Include width of burn hole as part of overall crack length.	

Table 602B		
CONDITION FOUND	COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION

Table 602B

CONDITION FOUND	COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Cracks in the Heatshield Face	All quantities of cracks that are not more than 0.25 inch (6.350 mm) in length are permitted. Cracks that go through other cracks are not permitted.	
	No more than two cracks that are longer than 0.25 inch (6.350 mm) are permitted. Two cracks on each face are permitted to go across each face, but must be apart by at least 45°.	No more than four cracks that are longer that 0.25 inch (6.350 mm) are permitted. Four cracks on each face are permitted to go across each face, but must be apart by at least 30°.
Erosion of the Inner Heatshield Face (Material that is Gone)	All quantities of erosion of the Inner Heatshield Face are permitted. But, the impingment holes must not be open to view from the rear.	All quantities of erosion of the Inner Heatshield Face are permitted. But, no more than four impingment holes on each Heatshield are permitted to be open to view from the rear.
Erosion of the Outer Heatshield Face (Material that is Gone)	Outer Heatshield Face Erosion must not extend more than 0.200 inch (5.080 mm) from the perimeter of the Outer Heatshield Face.	Erosion which extends from the perimeter of the Outer Heatshield Face must be more than 0.025 inch (0.635 mm) away from the Inner Heatshield Face
Burned Marks and Distortion in the Heatshield Face	Heatshield burned marks and distortion are permitted if the Heatshield face erosion and cracks are in the limits. The damage that results to the Bulkhead must not be worse than the given limits.	
Heatshield Surface Layer that is Gone	All quantities. NOTE: When the surface layer is gone, the rate of the Heatshield deterioration will increase.	

Table 602B

CONDITION FOUND	COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS	
	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Fuel Injector Endcap Segments	All quantities of Cracks or endcap segments that are gone are permitted. If pieces of the endcap segments are not there, examine the 1st- and 2nd-stage HPT blades for FOD.	
Radial Cracks in the Fuel Injector End Cap/Tip Heatshield	All quantities are permitted. See Figure 614.	
Circumferen-tial Cracks along the OD of the Fuel Injector End Cap/Tip Heatshield	All quantities are permitted. See Figure 614.	
End Cap Material Liberation of the Fuel Injector End Cap/Tip Heatshield	All quantities are permitted. See Figure 614. NOTE: Liberation is segments broken away.	
Burned Marks, Erosion, Distortion, or Holes in the Bulkhead	None are permitted. IMMEDIATELY REMOVE THE ENGINE	

Table 602B		
	COMBUSTION CHAMBER ASSEMBLY BULKHEAD AND FUEL INJECTOR GUIDE HEATSHEILD CONTINUE-IN-SERVICE LIMITS	
CONDITION FOUND	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Radial or Circumferential Bulkhead Cracks	Individual radial or circumferential cracks that are less than 0.50 inch (12.7 mm) in length are permitted.	All quantities that are less than 0.50 inch (12.700 mm) in length are permitted. Cracks must be separated circumferentially by 6.00 inches (152.40 mm) of sound material.

(5) Install the access port plugs AP-8 (Fig. 605A):

(a) Apply some Silver Goop to the plug threads.

(b) Install the plugs with new AP-8 Gaskets.

(c) Tighten the AP-8 plugs to 40-50 pound-inches (4.519-5.649 newton-meter).

(d) Install lockwire on the AP-8 plug.

(6) Do this procedure: Put the Airplane Back to its Usual Condition.

3. HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

A. Equipment

(1) AP-8 Gasket - PWA 673049 (6 are necessary)

(2) AP-9 Washer - PWA 584977

(3) AP-10 Gasket - PWA ST1146-08

(4) AP-11 Gasket - PWA ST1142-012

(5) Puller - PWA 86081 (For removal of the AP-10 Plug Assembly)

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(6) Packing - Preform AS3209-121

(7) Guide Tube - PWA 86411, AP-8 Port (for the flexible borescope)

B. Consumable Materials

(1) D50124 Anti-seize paste (P06-054)

(2) B00299 Petroleum Solvent P-D-680, Type I

(3) D00244 Antiseize compound, high temperature - Silver Goop

C. Do the HPT Blade and Vane Inspection.

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.

(1) Do this procedure: Prepare for the Borescope Inspection.

(2) Remove the plugs from the access ports AP-8 and AP-9 of the combustion chamber; refer to Fig. 605 and 611 for the access port locations and borescope data.

NOTE: The six AP-8 plugs are found on the diffuser case at 45, 128, 172, 225, 277, and 338 degrees clockwise from the top center of the engine from the rear view.

(a) Measure the shaft diameter of the AP-9 borescope plug.

(b) If the minimum dimension of the shaft diameter is less than 0.100 inch (2.54 mm), you must replace the AP-9 borescope plug.

(3) Do the steps that follow to install the PWA Guide Tube:

(a) Put the PWA 86411 Guide Tube through the diffuser case access port at the AP-8 location with the tip pointed forward (in the direction of the front of the engine).

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(b) Turn and adjust the tube until the flexible borescope, when it is installed, will point in the direction of the 1st-stage NGV (nozzle guide vanes).

(c) Lock the Guide Tube in the correct position with the compression nut.

(4) Remove the plugs from the access ports AP-10 of the HPT LPT transition duct, and the optional AP-11 for the HPT; refer to Fig. 605 and Fig. 618 for the access port locations and borescope data.

(a) Remove the two bolts which attach the AP-10 plug assembly to the case (Fig. 618).

(b) Use a PWA 86081 Puller to remove, as an assembly, the AP-10 plug, the plug stop, the spring washer, and the cotter pin.

NOTE: Do not remove the cotter pin.

(c) Discard the gasket.

(d) ENGINES WITH BORESCOPE PLUG AP-11 (POST-PW-SB 72-157); remove the borescope plug and gasket from the No. 3 TVBCA (turbine vane cooling air) duct AP-11 as follows:

1) Remove the bolts that attach the borescope plug to the aft elbow of the No. 3 TVBCA duct.

2) Remove the plug with two jackscrews, if it is necessary.

3) Discard the packing.

WARNING: DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND CIRCUMFERENTIAL CUT HOLES, FRAYING, OR BROKEN HOLES IN THE EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE CONDITIONS CAN CAUSE INJURY TO PERSONS.

CAUTION: MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW 150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

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(5) Put the borescope through each access port to examine the condition of the HPT blades and vanes.

NOTE: It is possible that you will find local cracks and spalling on the HPT duct segments during the borescope inspection. These local cracks and spalling are permitted, if the engine is within EGT limits.

(6) Compare the damage as identified in Figs. 619, 620, and 621 with the continue-in-service limits shown in Tables 603, 604 and 605.

NOTE: The frequency of the regular time inspection that is referred to in the tables is from our Maintenance Planning Document. The frequency of the decreased time inspection is two times the frequency of the regular time inspection. In other words, the interval between decreased time inspections is half the interval of regular time inspections.

NOTE: The maximum limits for the regular time and decreased time inspections were calculated to have the qualities that follow:
- During usual conditions of operation, permitted damage will not become unsatisfactory before the time for the subsequent applicable inspection.
- Usually, higher damage limits are permitted for the decreased time inspection because that inspection is done more frequently.
- Damage and deterioration in some areas change the performance of the engine very quickly, which makes a higher limit (for the decreased time inspection) not possible. For damage in these areas, the limits for the decreased and regular time inspections are equal.

(a) Use these limits when you examine the 1st-stage HPT vanes:

1) If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.

2) If these conditions will quickly occur, immediately remove the engine: part failure, or areas where material will break off.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Nicks and Dents	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms	Nicks and rounded bottom dents that are not more than 0.125 inch (3.175 mm) in length or diameter. NOTE: If the view angle is such that depth can be determined, the maximum nick and round bottom dent depth is 0.0312 inch (0.792 mm).	
	Trailing Edge	No more than two nicks or dents that are apart by at least 0.750 inch (19.050 mm). Five Vanes Maximum on each engine. If more than the above interval inspection limits.	 Remove engine in 5 cycles or less.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Damaged or Missing Thermal Barrier Coating	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms, Trailing Edge	No limit on the quantity of chipped coating, coating loss, checking, crazed or cracked thermal barrier coating. NOTE: If a large quantity of thermal barrier coating is missing, (gone), and the vane is operated for a long time, it is possible that the vane cannot be repaired at overhaul. The vane base metal can become burned and eroded.	
Burned Areas, Erosion	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms, Trailing Edge	No limit on the quantity of burning and erosion as long as it is not burned completely through the wall.	
Material Break-through or Burn-through	Leading Edge, Concave and Convex Airfoils, ID and OD Platforms	One material breakthrough or burnthrough with an open area (material that is not there) up to but not more than 0.157 inch (3.988 mm) diameter or 0.019 sq-in. (12.258 sq-mm).	

1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		One material breakthrough or burnthrough and with an open area (material that is not there) more than 0.157 inch (3.988 mm) but less than 0.300 inch (7.620 mm) diameter or up to 0.070 sq-in. (45.161 sq-mm) maximum.	Permitted for 300 cycle reduced inspection interval.
		A maximum of five vanes for each engine with one material breakthrough or burnthrough, and more than 0.300 inch (7.620 mm) but less than 0.500 inch (12.700 mm) diameter or 0.196 sq-inch (126.451 mm) into the internal cavity.	Permitted for 300 cycle reduced inspection interval.
		More than 5 vanes with one material breakthrough or burnthrough and more than 0.300 inch (7.620 mm) but less than 0.500 inch (12.700 mm) diameter or up to 0.196 sq-inch (126.451 sq-mm) maximum.	Permitted for 150 cycle reduced inspection interval.

1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		For leading edge burn-through more than 0.500 inch (12.700 mm) diameter: No limit on the number of vanes with leading edge burnthrough up to 1.614 inch (40.996 mm) maximum radial length that does not go axially more than the first row of concave side cooling holes and does not go axially more than the second row of convex side cooling holes is permitted if there is no burning on the internal baffle.	Permitted for 50 cycle reduced inspection interval.
		Vane baffle burned through.	Not permitted. Remove and Replace.
		More than the above internal inspection limits.	Remove engine in 5 cycles maximum or less.
Material Break-through or Burn-through	Concave Side Trailing Edge	Burnthrough less than 75 percent span of axial length from the trailing edge to the rear cooling holes and up to 1.575 inches (40.005 mm) maximum width.	

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Burnthrough more than 75 percent span of axial length from the trailing edge to the rear cooling holes and up to 1.575 inches (40.005 mm) maximum width.	Permitted for 300 cycle reduced inspection interval.
		Burnthrough up to 0.512 inch (13.005 mm) forward of the rear two rows of cooling holes and up to 1.575 inches (40.005 mm) maximum width.	Permitted for 150 cycle reduced inspection interval.
		Burnthrough more than 0.511 inch (12.979 mm) forward of the rear two rows of cooling holes, or is more than 1.575 inches (40.005 mm) in width, or if the internal baffle is burned through.	Remove engine in 5 cycles maximum or less.
	Convex Side Trailing Edge	Burnthrough less than 50 percent span from the trailing edge to the rear cooling holes.	
		Burnthrough more than 50 percent span from the trailing edge to the rear cooling holes.	Permitted for 150 cycle reduced inspection interval.
		Burnthrough is forward of the rear cooling holes.	Remove engine in 5 cycles or less.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Cracks, (Axial and Radial)	Leading Edge Surface	No limit on the quantity of tight cracks. Closed loop cracks are not permitted.	
		One crack in each vane starting at the ID or OD platform, to a maximum height of 0.500 inch (12.700 mm).	
		A maximum of 3 cracks in each vane which go to a concave or convex airfoil cooling hole. Closed loop cracks are not permitted.	
		Two cracks in each vane starting at the ID or OD platforms, to a maximum height of 0.750 inch (19.050 mm).	Permitted for 300 cycle reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycles maximum or less.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	Concave Airfoil Surface	No limit on the quantity of axial or radial cracks less than 0.157 inch (3.988 mm) are permitted. Closed loop cracks are not permitted. NOTE: A crack or part length of a crack that has burned or eroded to a width more than 0.050 inch (1.270 mm) must be identified as a hole. The breakthrough or burnthrough limits apply.	
		A maximum of three axial cracks that go from one cooling hole group to the next cooling hole group or from the trailing edge to the rear cooling hole group are permitted.	
		One of the above three axial cracks can go forward or rearward to the next cooling hole group or from the trailing edge through the rear cooling hole group to the next cooling hole group.	

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		No limit on the quantity of axial cracks that go from one cooling hole group to the next cooling hole group or from the trailing edge to the rear cooling hole group if the cracks do not form a closed loop.	Permitted for 300 cycle reduced inspection interval.
		Radial cracks that go from the ID or OD platform to the concave airfoil are permitted. The maximum crack length on the airfoil from the platform is 0.500 inch (12.700 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface.	

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Radial cracks that go from the ID or OD platform to the concave airfoil surface more than 0.500 inch (12.700 mm) but less than 0.800 inch (20.320 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface.	Permitted for 300 cycle reduced inspection interval.
		Three radial cracks maximum to 0.500 inch (12.700 mm) maximum length are permitted.	
		No limit on the quantity of radial cracks to 0.800 inch (20.320 mm) length.	Permitted for 300 cycle reduced inspection interval.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		A crack can intersect with another crack except for cracks that start at the ID or OD platform. The maximum length for either crack leg is 0.400 inch (10.160 mm). The intersection of platform cracks with airfoil cracks is not permitted.	
		An intersecting crack with a leg more than 0.400 inch (10.160 mm) and less than 0.800 inch (20.320 mm) except for cracks that start at the the ID or OD platform. The intersection of platform cracks with airfoil cracks is not permitted. length.	Permitted for 300 cycle reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycles maximum or less.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	Convex Airfoil Surface	No limit on the quantity of axial or radial cracks less than 0.157 inch (3.988 mm) are permitted. Closed loop cracks are not permitted. NOTE: A crack or part length of a crack that has burned or eroded to a width more than 0.050 inch (1.270 mm) must be identified as a hole. The breakthrough or burnthrough limits apply.	
		Three axial cracks maximum to 0.500 inch (12.700 mm) maximum length except as follows: One of the three axial cracks can traverse from the trailing edge for a maximum distance of 0.750 inch (19.050).	
		Six axial cracks maximum to 0.800 inch (20.320 mm) maximum length except as follows: One of the six axial cracks can traverse from the trailing edge for a maximum distance of 1.300 inches (33.020 mm), or to the last row of cooling holes.	Permitted for 300 cycle reduced inspection interval.
		One axial crack from the trailing edge to a maximum of 1.181 inches (29.997 mm).	

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		One axial crack from the trailing edge more than 1.181 inches (29.997 mm) to 2.362 inches (59.995 mm) maximum is permitted.	Permitted for 300 cycle reduced inspection interval.
		Three radial cracks to 0.500 inch (12.700 mm) length.	
		No limit on the quantity of radial cracks to 0.800 inch (20.320 mm) maximum.	Permitted for 300 cycle reduced inspection interval.
		A crack can intersect with another crack except for cracks that start at the ID or OD platforms. The maximum length for either crack leg is 0.500 inch (12.700 mm). Intersection of platform cracks with airfoil cracks is not permitted.	
		An intersecting crack with a leg more than 0.500 inch (12.700 mm) and less than 0.800 inch (20.320 mm) except for cracks that start at the ID or OD platform. Intersection of platform cracks is not permitted.	Permitted for 300 cycle reduced inspection interval.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Radial cracks that go from the ID or OD platforms to the convex airfoil are permitted. The maximum crack length on the airfoil from the platform is 0.500 inch (12.700 mm). Cracks from a platform that go to the airfoil surface cannot intersect other cracks on the airfoil surface.	
		Radial cracks that go from the ID or OD platform to the convex airfoil surface more than 0.500 inch (12.700 mm) but less than 0.800 inch (20.320 mm) are permitted. Cracks from a platform that go to the air-airfoil surface cannot intersect other cracks on the airfoil surface.	Permitted for 300 cycle reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycles maximum or less.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
	ID and OD Platform Surfaces (Buttresses)	No limit on the quantity of cracks less than 0.250 inch (6.350 mm) in length on the platform surfaces are permitted. Intersecting cracks are permitted if no closed loop is formed. Closed loop cracks are not permitted.	
		NOTE: A crack or part length of a crack that has burned or eroded to a width of more than 0.050 inch (1.270 mm) must be identified as a hole. The breakthrough or burnthrough limits apply.	
		Four cracks maximum more than 0.250 inch (6.350 mm) long are permitted on the OD platform concave airfoil side. Three of the cracks can be up to 0.700 inch (17.780 mm) long, and one crack can be of any length. These cracks can go to the airfoil concave surface to a height of 0.500 inch (12.70 mm).	

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Six cracks maximum more than 0.250 inch (6.350 mm) long are permitted on the OD platform concave airfoil side. Four of the cracks can be up to 0.700 inch (17.780 mm) long, and two of the cracks can be of any length. These cracks can go to the airfoil concave surface to a height of 0.800 inch (20.320 mm).	Permitted for 300 cycle reduced interval.
		Two cracks more than 0.250 inch (6.350 mm) long are permitted on the OD platform convex airfoil side from the airfoil fillet to platform edge.	
		Four cracks more than 0.250 inch (6.350 mm) long are permitted on the OD platform convex airfoil side from the airfoil fillet to platform edge.	Permitted for 300 cycle reduced inspection interval.

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1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619)
Table 603

CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		Two cracks maximum more than 0.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet to platform edge.	
		Four cracks more than 0.250 inch (6.350 mm) long are permitted on the ID platform concave or convex airfoil side from the airfoil fillet to platform edge.	Permitted for 300 cycle reduced inspection interval.
		One crack maximum for each side and two cracks total for each vane in the ID or OD fillet radius that goes parallel or axially along the fillet radius surface. The maximum length is 0.600 inch (15.240 mm). Airfoil/platform fillet radius cracks can intersect other cracks if the total length is less than 1.0 inch (25.400 mm). No circumferential cracks in the leading edge fillet.	

1ST-STAGE HPT VANES CONTINUE-IN-SERVICE LIMITS (Figure 619) Table 603			
CONDITION FOUND	VANE AREA	PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
		One crack maximum for each side and two cracks total for each vane in the ID or OD fillet radius that goes parallel or axially along the fillet radius surface. The maximum length is 1.000 inch (25.400 mm). Airfoil/platform fillet radius cracks can intersect other cracks if the total length is less than 1.750 inches (44.450 mm).	Permitted for 300 cycle reduced inspection interval.
		One crack maximum in the ID or OD leading edge fillet radius surface that goes circumferentially around the leading edge to a length of 0.400 inch)10.160 mm) maximum.	Permitted for 300 cycle reduced inspection interval.
		More than the above interval inspection limits.	Remove engine in 5 cycles maximum or less.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(b) Use these limits when you examine the 1st-stage HPT blades:

NOTE: The first sign of corrosion on a blade is a circular stain or mark on the outer surface of the blade. A green to white and blue color stain is a sign of sulfidation corrosion.

NOTE: Blade erosion removes the surface layer which is for protection. This will quickly cause deterioration of the inner alloy.

NOTE: A sign of airfoil growth is when the length of the blade is increased and the perimeter of the middle is decreased.

1) If damage is worse than the decreased time inspection limits, remove the engine before the 6th cycle.

2) If these conditions will quickly occur, immediately remove the engine: part failure, or areas where material will break off.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Nicks and Dents NOTE: No crack that is with a nick or dent is permitted, unless it is, in the limits for Axial or Radial Cracks.	A	None	On each blade, one nick or dent that is no more than 0.08 inch (2.032 mm) in length or diameter.
	B	All Nicks or dents that are not more than 0.08 inch (2.032 mm) in length or diameter.	All nicks or dent that are not more than 0.125 inch (3.175 mm) in length or diameter.
Burned Areas NOTE: Burned areas that cause a decrease in the flow of cooling air is not permitted.	A, B, and C	Burned areas are not permitted.	Burned areas to a maximum of 0.750 inch (19.050 mm) in diameter or 0.422 square inch (285.0 square mm) in area. Leading edge burned areas to a maximum of 0.40 inch (10.160 mm) in diameter Or 0.126 square inch (81.0 square mm) in area.
Erosion damage on the surface layer.	A, B, and C	All amounts are Permitted.	All amounts are permitted.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Axial or Radial Cracks NOTE: See the subsequent limits for open cracks. Material tears are the same as cracks.	A	None	One hole to hole crack on the leading edge only. No airfoil cracks. NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OR IMMINENT MATERIAL LIBERATION. REMOVE ENGINE WITHIN 5 CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED.
	B	All axial or radial cracks or hole to hole cracks at the tip or leading edge are permitted. No breakthrough or open areas. No intersecting cracks or imminent material liberation. NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OR IMMINENT MATERIAL LIBERATION.	Axial or radial cracks on the leading edge, airfoil or tip area are permitted. Breakthrough to internal cavity with open area to breakthrough limit is permitted. NOTE: REMOVE ENGINE IMMEDIATELY IF THERE IS IMMINENT PART FAILURE OR IMMINENT MATERIAL LIBERATION. REMOVE ENGINE WITHIN 5 CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Axial or Radial Cracks NOTE: See the subsequent cracks. Material tears are the same as cracks.	C	All quantities of platform edge cracks that do not go into the platform to airfoil fillet radius and do not have signs of platform curling.	All quantities of platform edge cracks that go into the platform to airfoil fillet radius UP TO 0.250 INCH (6.350 mm) RADIALLY PAST THE RADIUS INTO THE AIRFOIL. NOTE: REMOVE ENGINE WITHIN 5 CYCLES IF ANY REDUCED INTERVAL INSPECTION LIMITS ARE EXCEEDED. PLATFORM CURL (BEND) IS NOT PERMITTED.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Holes that are Broken or Burned through to the Internal Cavity	A	None is permitted. IMMEDIATELY REMOVE THE ENGINE.	
	B	None	On each blade, one piece that is gone from the tip or one hole that is less than 0.125 square inch (81.0 square mm) in area. No more than five blades with these holes on each rotor. NOTE: If the hole is more than the decreased time limits, but fully in area B, remove the engine within 50 cycles. If the hole goes outside of area B, remove the engine within 5 cycles or immediately.
Bent Tip	B	A bent tip is permitted if the damage is not worse than other damage limits.	
Leading Edge Holes and Blocked Cooling Air Exit Slots in the Trailing Edge	A and B	Two leading edge holes (not adjacent) and two blocked trailing edge exit slots on each blade.	
Blocked Cooling Air Exit Holes in the Tip	B	Two blocked holes on each blade.	All blocked holes if the damage is not worse than other damage limits.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 604

CONDITION FOUND	BLADE AREA	1ST-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS	
		PERMITTED WITH REGULAR TIME INSPECTION	PERMITTED WITH DECREASED TIME INSPECTION
Tip Rub or Plasma Spray Deterioration	B	All quantities, if it is not worn through to the internal cavity.	
Areas where the Blade Parent Material is Gone	A and B	None	None, but that which is in the limits for Broken or Burned Hole.
Airfoil Growth	A and B	None IMMEDIATELY REMOVE THE ENGINE.	

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(c) PW4056 ENGINES PRE-PW-SB 72-466;
Examine the 1st-Stage HPT blades for airfoil bulges as follows (Fig. 622):

NOTE: Refer to PW SB 72-422 for data about how to point the borescope through the AP-8 and AP-11 access ports.

1) If you use AP-11, examine the 1st-stage HPT blades for bulges (which cause the blade tip to curve) as follows:

a) Examine the blades for bulges after the first 2,000 cycles and after each 250 cycles or each subsequent "A check".

b) If you find a bulge, remove the engine within 25 cycles.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

2) If you use a flexible borescope with a guide tube through AP-8, examine the concave side of the 1st-stage HPT blades for dark spots as follows:

NOTE: The 1st-stage HPT blades with airfoil bulging usually have a large dark spot or shadow near the bulge. A dark spot that goes forward of the fifth tip cooling hole is a sign that the blade was too hot, which can cause bulging.

a) Examine the blades for dark spots after the first 2,000 cycles and after each 250 cycles or each subsequent "A check".

b) If you find a bulge or a white spot in a dark spot, remove the engine within 25 cycles.

NOTE: A white spot within a dark spot can be a sign of spalled coating which is caused by a bulge.

c) If you find more than 30 blades with dark spots that go forward of the fifth tip cooling air hole, examine the engine each 20 cycles and remove the engine within 100 cycles.

(d) PW4060 ENGINES PRE-PW-SB 72-466;
Examine the 1st-Stage HPT blades for airfoil bulges as follows (Fig. 622):

NOTE: Refer to PW SB 72-422 for data about how to point the borescope through the AP-8 and AP-11 access ports.

1) If you use AP-11, examine the 1st-stage HPT blades for bulges (which cause the blade tip to curve) as follows:

a) Examine the blades for bulges after the first 1,000 cycles and after each 250 cycles or each subsequent "A check" until the 1,900th cycle.

b) After the 1,900th cycle, examine the blades for bulges each 125 cycles.

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

c) If you find a bulge before the 1,500th cycle, examine the engine for worse damage each 50 cycles.

d) If you find a bulge after the 1,500th cycle, remove the engine within 25 cycles.

2) If you use a flexible borescope with a guide tube through AP-8, examine the concave side of the 1st-stage HPT blades for dark spots as follows:

NOTE: The 1st-stage HPT blades with airfoil bulging usually have a large dark spot or shadow near the bulge. A dark spot that goes forward of the fifth tip cooling hole is a sign that the blade was too hot, which can cause bulging.

a) Examine the blades for dark spots after the first 1,000 cycles and after each 250 cycles or each subsequent "A check" until the 1,900th cycle.

b) If you find a white spot in a dark spot after the 1,500th cycle, remove the engine within 25 cycles.

NOTE: A white spot within a dark spot can be a sign of spalled coating which is caused by a bulge.

c) After the 1,900th cycle, examine the blades for bulges each 125 cycles.

d) If you find more than 30 blades with dark spots that go forward of the fifth tip cooling air hole, remove the engine within 25 cycles.

e) If you find a bulge remove the engine within 10 cycles.

(e) Insert the borescope through the port and examine the HPT 2nd-stage blades as follows.

1) Look for signs of nicks, dents, cracks, tip damage, erosion, coating loss, liberated materials, bent tip, tip rub, airfoil growth, blocked cooling holes, sulfidation and damage caused by passage of foreign object metarials.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

2) You must examine each blade, and rotate the high rotor using hand or foot operated equipment.

(f) Use these limits when you examine the 2nd-stage HPT blades:

NOTE: The first sign of corrosion on a blade is a circular stain or mark on the outer surface of the Blade. A green to white and blue color stain is a sign of sulfidation corrosion.

NOTE: Blade erosion removes the surface layer which is for protection. This will quickly cause deterioration of the inner alloy.

NOTE: A sign of airfoil growth is when the length of the blade is increased and the perimeter of the middle is decreased.

NOTE: The loss of the blade coating can possibly result in

decreased life of the base alloy. This condition, as well as hot corrosion that attach (sulfidation), can affect the blade reliability.

1) If damage is worse than the decreased time inspection limits, remove the engine from operation before the 6th cycle.

2) If these conditions will quickly occur, immediately remove the engine from operation: part failure, or areas where material will break off.

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Nicks and Dents	A	None	On each blade, one nick or dent that is not more than 0.025 inch (0.635 mm) in length or diameter.	For imminent material liberation, remove engine immediately.
NOTE: No crack that is with a nick or dent is permitted, unless it is in the limits for Axial or Radial Cracks.	B	All nicks or dents that are not more than 0.130 inch (3.302 mm) in length or diameter.	All nicks or dents that are not more than 0.250 inch (6.350 mm) in length or diameter.	
	C	All nicks or dents that are not more than 0.130 inch (3.302 mm) in length or diameter.	All nicks or dents that are not more than 0.300 inch (7.620 mm) in length or diameter.	

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Surface Layer Deterior-ation, Burned Areas Erosion	A, B	One defect on each blade, in these limits: 1) Surface layer deterioration on the airfoil no more than 0.750 inch (19.050 mm) in diameter, 0.442 square inch (285 square mm) in area, or 2) Leading edge burned areas no more than 0.400 inch (10.160 mm) in diameter, 0.126 square inch (81 square mm) in area.		
	C	Same as A, B	One defect on each blade if it is in the burned or broken hole limits.	

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Axial or Radial Cracks NOTE: If there are holes, see "Holes that are Burned through to the Internal Space", below. Material tears are the same as cracks.	A	None. IMMEDIATELY REMOVE THE ENGINE.		
	B	None	All cracks that are less than 0.130 inch (3.3mm) in length and not with broken holes and do not connect with other cracks.	For imminent material liberation, remove engine immediately.
	C	All cracks are permitted provided that there are no open areas. No intersecting cracks or immnent material liberation are permitted.	All cracks on the leading edge or airfoil at tip are permitted. Break-through to internal cavity with open area to breakthrough limit is permitted.	For imminent material liberation, remove engine immediately.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Holes that Broken or Burned thr to the Int Space	A, B	None. IMMEDIATELY REMOVE THE ENGINE.		
	C	None	On each blade, one piece that is gone from the lip or one hole that is less than 0.125 square inch (81 square mm) in area. No more than five blades with these holes on each rotor.	For imminent material liberation, remove engine immediately.
Bent Tip	C	Permitted if other conditions are not exceeded.		Remove Engine Immediately
Trailing Edge Cooling Air Slots Blockage	A	A maximum of one trailing edge cooling air slot blocked per blade is permitted.		Remove engine immediately
	B, C	A maximum of two non-adjacent trailing edge cooling air slots blocked per blade is permitted.		Remove engine immediately
Tip Rub or Plasma Spray Loss	C	Any amount is acceptable if not rubbed into the internal cavity.		Remove engine immediately

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Liberated Blade Parent Material	A, B and C	None	None except as defined for "Material breakthrough into internal cavity" observed condition	Remove engine immediately
Airfoil Growth (as evid-enced by: bent or displaced 2nd stage blade(s) relative to adjcent blades in rotor	A, B and C	None See Fig. 621A	None See Fig. 621A	Remove engine immediately
Abnormal/ excessive tip rub				

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

Table 605 (Figure 621)

CONDITION FOUND	BLADE AREA	2ND-STAGE HPT BLADE CONTINUE-IN-SERVICE LIMITS		
		PERMITTED WITH REGULAR TIME INSPECTIONS	PERMITTED WITH DECREASED TIME INSPECTIONS	IF THE LIMIT IS EXCEEDED, REMOVE ENGINE WITHIN 5 CYCLES OR AS NOTED BELOW
Wavy/ deformed trailing edge				
Necking or thinning of airfoil profile at midspan region				
Cracks in the midspan trailing edge cooling hole openings				

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No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(g) Remove the PWA 86441 guide tube from the AP-8 ports.

(h) Apply Silver Goop to the plug threads.

(i) Install the plug with a new AP-8 gasket.

(j) Tighten the AP-8 plugs.

(k) Install lockwire on the AP-8 plug.

(7) Install the access port plug AP-9 (Fig. 605A):

(a) Apply silver goop to the plug threads.

(b) Install the plugs with new AP-9 washers.

(c) Tighten the AP-9 plugs.

(d) Install lockwire on the AP-9 plug.

(8) Install the access port AP-10 (Fig. 605A):

(a) If the access port AP-10 is disassembled, assemble it for the installation.

NOTE: The plug assembly is not usually disassembled. If you will examine the 3rd-Stage LPT vanes and blades , do not install the AP-10 access plug.

1) When you install the spring tension washer in the cover recess, make sure these conditions occur: the outer diameter of the washer touches the cover, and the concave surface of the washer is adjacent to the cover.

2) From the washer side, put the plug in the assembled washer and cover.

3) Push the cotter pin in the plug until the cotter pin head is tightly against the flat side of the plug.

MECH | INSP

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

(b) With the split side to the inside, install the plug with a new AP-10 gasket.

NOTE: The plug will be in the case boss and the spring washer will push the plug to the inside.

(c) Attach the plug stop cover to the plug (AP-10).

(d) Fully clean the bolt threads and the plug threads with petroleum solvent.

NOTE: This removes unwanted carbon and all the used anti-seize paste (PO6-054).

(e) Apply a layer of Silver Goop to the threads of the bolts and remove the unwanted compound.

(f) With the bolts, attach the plug stop to the access port boss (Fig. 618).

(g) Tighten the bolts (See Table 605A).

(h) Install lockwire on the AP-10 plug.

(9) ENGINES WITH BORESCOPE PLUG AP-11 (POST-PW-SB 72-157); Install the AP-11 plug in the No. 3 TVBCA duct (Fig. 605A).

(a) Install the gasket in the borescope plug groove.

(b) Install the AP-11 plug at the aft elbow of the No. 3 TVBCA duct.

(c) Engage the AP-11 plug end in the inner hole of the HPT to seat it.

(d) Install the bolts, threads lubricated with engine oil.

(e) Tighten the bolts, in a sequence that is not circular (See Table 605A).

1) Install lockwire on the plug.

No. 15 - HPT (1st and 2nd-Stage) Blade and Duct Segments, and (1st-Stage) Vane Inspection

AP-10 and AP-11 Borescope Plug Installation Data
Table 605A

AP Number And Location	Gasket Required	Bolt Locking Method	Bolt Replacement Lubricant	Bolt Torque Value lb-in (N.m)
AP-10 HPT 2nd-Stage	Yes ST1146-08	Lockwire (MS9226-04)	P06-023 Silver Goop	54.000 - 60.000 (6.101 - 6.779)
AP-11 Lower TCA Tube	Yes PN ST1142-011 (Gasket)	Self-locking	P03-001 Engine Oil	75.000 - 85.000 (8.474 - 9.604)

(10) Do this procedure: Put the Airplane Back to its Usual Condition.

4. LPT Vanes (3rd-Stage)-Inspection

A. General

(1) This inspection is the visual check of the 3rd-stage vanes in the primary gaspath of the LPT.

(2) The limits in this section will help you know if the engine can continue to operate or if you must remove and repair it.

B. Equipment

(1) AP-10 Gasket - PWA ST1146-08

(2) Puller - PWA 86081 (For removal of the AP-10 Plug Assembly)

(3) Wedge (Block - Fan Blade) - PWA 102757 (3 are required during windy conditions)

(4) Packing - Preform AS3209-121

MECH | INSP

(5) Crank Pad Cover Packing - PWA AS3204-121

C. Consumable Materials

(1) D50124 Anti-seize paste (P06-054)

(2) G00966 Kerosene - VV-K-211

(3) B00776 Petroleum Solvent P-D-680, Type I

(4) D00244 - Antiseize compound, high temperature - Silver Goop

D. Do the LPT Vane Inspection.

CAUTION: WHEN YOU EXAMINE THE VANES, FIND THE CAUSE OF ALL OF THE FOD TO MAKE SURE THAT THE LPC IS SERVICEABLE. DAMAGE IN THIS AREA CAN BE AN INDICATION OF A MORE DANGEROUS PROBLEM. OTHER COMPONENTS CAN POSSIBLY BE DAMAGED.

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.

(1) Do this procedure: Prepare for the Borescope Inspection.

WARNING: DO NOT DO A BORESCOPE INSPECTION IF THE WIND IS MORE THAN 3 - 5 MPH (4.8 - 8 KPH). DURING WINDY CONDITIONS, THE N1 ROTOR CAN TURN (WINDMILL). THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE BORESCOPE EQUIPMENT.

WARNING: INSTALL THE PWA 102757 WEDGES BETWEEN THE FAN BLADES WHEN THE WIND IS LESS THAN 3 - 5 MPH (4.8 - 8 KPH). IF YOU DO NOT INSTALL THE WEDGES DURING MILD WIND CONDITIONS, THE N1 CAN TURN (WINDMILL). THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE BORESCOPE EQUIPMENT.

(2) If the wind condition is less than 3 - 5 MPH (4.8 - 8 KPH), install the wedges as follows.

MECH | INSP

(a) Do not install the wedge if the wind condition is more than 3 - 5 MPH (4.8 - 8 KPH).

(b) Install two or three wedges between the fan blades and the fan case at approximately the 6 o'clock position.

(c) Make sure the wedge is installed tight enough to prevent the fan blades from turning, but it must not raise the fan blades up.

(d) The red warning streamer must go towards the front of the engine inlet.

(e) If it is necessary to turn the N1 rotor to complete the borescope inspection, do the steps as follow.

1) Remove the wedges.

2) Turn the N1 rotor by hand and install the wedges again.

3) Do this procedure again until the borescope inspection is complete.

(3) Remove the plug from the LPT HPT access port AP-10; refer to Fig. 605 and 618 for the access port location and the borescope data.

(a) Remove the two bolts that attach the plug stop to the case (Fig. 618).

(b) Use a PWA 86081 Puller to remove, as an assembly, the plug, the plug stop, the spring washer, and the cotter pin; discard the gasket.

NOTE: Do not remove the cotter pin.

MECH | INSP

WARNING: DO NOT USE THE POWER CABLE OF THE BORESCOPE IF YOU FIND CIRCUMFERENTIAL CUT HOLES, FRAYING, OR BROKEN HOLES IN THE EXTERNAL RUBBER COVERING ON THE CABLE. POWER CABLES WITH THOSE CONDITIONS CAN CAUSE INJURY TO PERSONS.

CAUTION: MAKE SURE THE TEMPERATURE OF THE INSPECTION AREAS ARE BELOW 150°F (65.6°C) BEFORE YOU USE THE BORESCOPE. IF THE CASES ADJACENT TO THE INSPECTION AREAS ARE TOO HOT TO KEEP YOUR HAND ON, YOU CAN CAUSE DAMAGE TO THE BORESCOPE.

(4) Put the borescope through the access port to examine the 3rd-stage LPT vanes for nicks, dents, cracks, and other FOD.

CAUTION: USE CAUTION WHEN YOU USE THIS PROCEDURE TO MAKE A DECISION ABOUT THE CONDITION OF THE ENGINE. THE BORESCOPE INSPECTION LIMITS ARE A RESULT OF TESTS AND STRUCTURAL ANALYSIS. THE PART LIFE AND THE PERFORMANCE OF THE ENGINE CAN DECREASE QUICKLY WHILE THE DAMAGE OF THE PARTS BECOMES NEAR TO THE MAXIMUM CONTINUE-IN-SERVICE LIMITS.

CAUTION: IF YOU FIND DAMAGE THAT IS WORSE THAN THE CONTINUE-IN-SERVICE LIMITS, OR PIECES OF THE VANE WILL FALL OFF, REMOVE THE ENGINE IMMEDIATELY. THIS TYPE OF DAMAGE CAN CAUSE MORE DAMAGE TO THE ENGINE IF IT IS NOT REPAIRED.

(5) Compare the damage you find with the continue-in-service limits shown in Fig. 622 (sheet 1).

(a) If there has been a sudden increase in EGT, check for a possible missing or liberated LPT 3rd-stage outer transition duct segment.

(b) No missing or liberated outer transition duct segments are permitted.

(6) Install the access port AP-10 (Fig. 605A):

NOTE: If you will do an inspection of the LPT 3rd-stage blades, do not install the access port AP-10.

MECH | INSP

(a) If the access port AP-10 is disassembled, assemble it for the installation.

NOTE: The plug assembly is not usually disassembled.

1) When you install the spring tension washer in the cover recess, make sure these conditions occur: the outer diameter of the washer touches the cover, and the concave surface of the washer is adjacent to the cover.

2) From the washer side, put the plug in the assembled washer and cover.

3) Push the cotter pin in the plug until the cotter pin head is tightly against the flat side of the plug.

(b) With the split side to the inside, install the plug with a new AP-10 gasket.

NOTE: The plug will be in the case boss and the spring washer will push the plug to the inner side.

(c) Attach the plug stop cover to the plug (AP-10).

(d) Fully clean the bolt threads and the plug threads with petroleum solvent.

NOTE: This removes unwanted carbon and all used anti-seize paste.

(e) Apply a layer of Silver Goop to the threads of the bolts and remove the unwanted compound.

(f) Attach the plug stop to the access port boss with the bolts (Fig. 618).

1) Tighten the bolts.

(g) Install lockwire on the AP-10 plug.

(7) Do this procedure: Put the Airplane Back to its Usual Condition.

5. LPT Blades (3rd-Stage) - Inspection

MECH | INSP

6. Put The Airplane Back to its Usual Condition

A. References

(1) AMM 71-11-04/201, Fan Cowl Panels

(2) AMM 71-11-06/201, Core Cowl Panels

(3) AMM 78-31-00/201, Thrust Reverser System

B. Put the Airplane Back to its Usual Condition

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Close the thrust reverser (AMM 78-31-00/201).

(2) Close the core cowl panel (AMM 71-11-06/201).

(3) Close the fan cowl panel (AMM 71-11-04/201).

(4) For the left engine, remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:

(a) 11D19, ENGINE START CONT L

(5) For the right engine, remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:

(a) 11D20, ENGINE START CONT R

(6) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

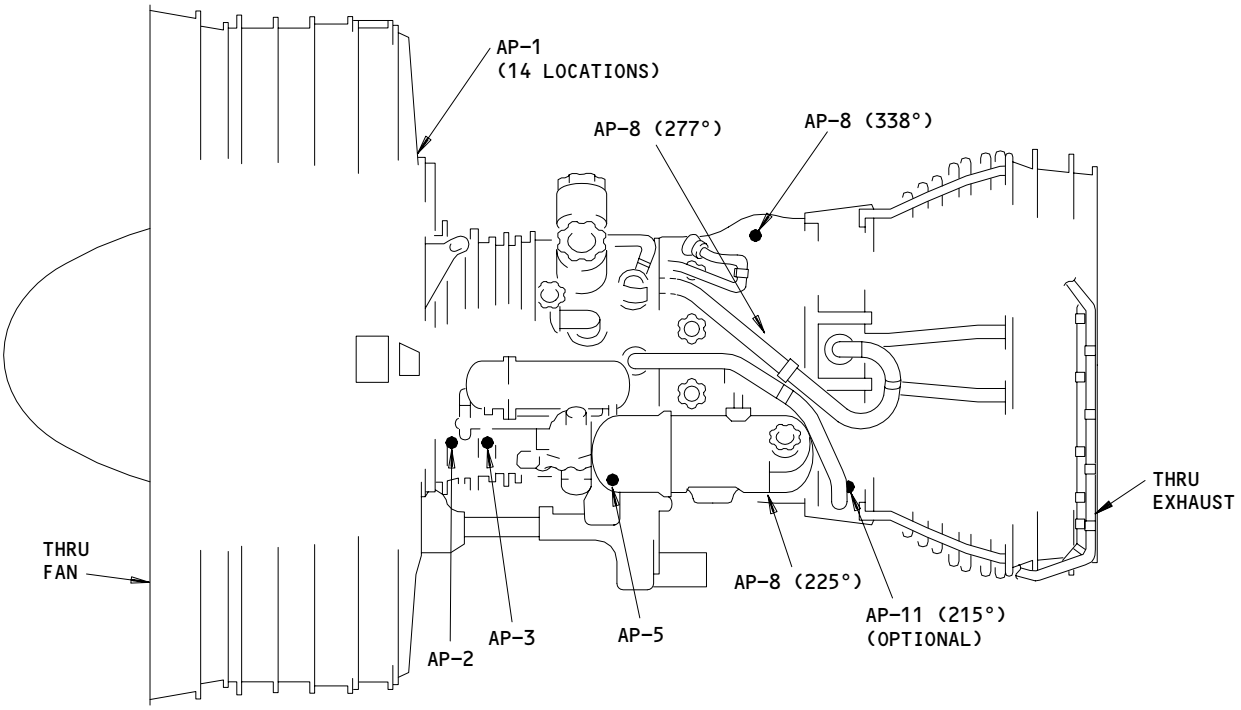
ACCESS PORT	ANGULAR POSITION CLOCKWISE FROM REAR	GASPATH LOCATION	PART(S) IN VIEW FOR INSPECTION	RECOMMENDED MAXIMUM PROBE DIAMETER IN/mm
THRU FAN	ALL	LPC COMPRESSOR INLET	1ST C-VANE 1ST C-BLADE	--
AP-1	245°	4TH-STAGE COMPRESSOR VANE	REAR OF 4TH C-BLADE FRONT OF 4TH C-VANE	--
AP-2	233°	5TH-STAGE COMPRESSOR VANE	REAR OF 5TH C-BLADE FRONT OF 6TH C-BLADE	0.270/6.8
AP-3	231°	6TH-STAGE COMPRESSOR VANE	REAR OF 6TH C-BLADE FRONT OF 7TH C-BLADE	0.270/6.8
AP-4	127°	8TH-STAGE COMPRESSOR VANE	REAR OF 8TH C-BLADE FRONT OF 9TH C-BLADE	0.270/6.8
AP-5	214°	10TH-STAGE COMPRESSOR VANE	REAR OF 10TH C-BLADE FRONT OF 11TH C-BLADE	0.270/6.8
AP-6	98°	12TH-STAGE COMPRESSOR VANE	REAR OF 12TH C-BLADE FRONT OF 13TH C-BLADE	0.270/6.8
AP-7	80°	14TH-STAGE COMPRESSOR VANE	REAR OF 14TH C-BLADE FRONT OF 15TH C-BLADE	0.270/6.8
AP-8	45°, 128°, 172°, 225°, 277°, 338°	COMBUSTION CHAMBER	FUEL NOZZLE COMBUSTION CHAMBER 1ST TURBINE VANE	0.444/11.3
AP-9	93°	COMBUSTION CHAMBER	FRONT OF 1ST T-VANE FRONT OF 1ST T-BLADE	0.270/6.8
AP-10	139°	TRANSITION DUCT	REAR OF 2ND T-BLADE FRONT OF 3RD T-VANE	0.270/6.8
AP-11	215°	STAGE 2 TURBINE BLADE	REAR OF 1ST T-BLADE FRONT OF 2ND T-BLADE	0.444/11.3
THRU EXHAUST CASE STRUTS	ALL		6TH T-BLADE 6TH T-VANE	

Borescope Access Port Data
Figure 605 (Sheet 1)

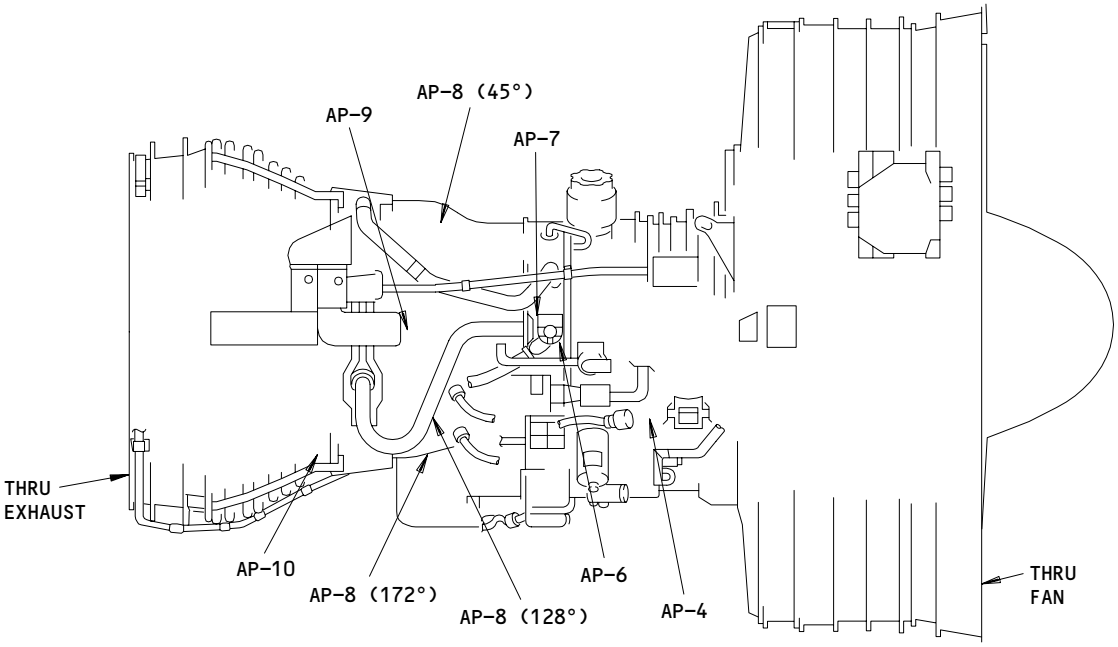
ACCESS PORT	NOTES
THRU FAN	
AP-1	1 7
AP-2	
AP-3	
AP-4	
AP-5	2
AP-6	3
AP-7	
AP-8, 45°	5
AP-8, 128°	5
AP-8, 172°	5 9
AP-8, 225°	5
AP-8, 277°	4
AP-8, 338°	5 6
AP-9	
AP-10	
AP-11	8

1. ACCESS IS THROUGH FOURTEEN 2.5 BLEED VALVE OPENINGS IN THE INNER LINING OF THE FAN EXIT CASE. A FLEXIBLE PROBE IS NECESSARY AT THIS ACCESS PORT.
2. BORESCOPE MUST BE ANGLED 5° AFT OF THE PLANE THAT IS AT 90° TO THE ENGINE CENTERLINE TO INSERT PROBE.
3. BORESCOPE MUST BE ANGLED 15° AFT OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
4. BORESCOPE MUST BE ANGLED 21° FORWARD OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
5. BORESCOPE MUST BE ANGLED 7.5° FORWARD OF PLANE THAT IS AT 90° TO ENGINE CENTERLINE TO INSERT PROBE.
6. RIGHT ANGLE EYEPIECE RECOMMENDED.
7. ALLOW 3-4 INCHES (76-102 mm) FOR THE EYEPIECE LENGTH.
8. OPTIONAL BORESCOPE PORT LOCATION
9. RIGHT ANGLE EYEPIECE IS NECESSARY.

Borescope Access Port Data
Figure 605 (Sheet 2)

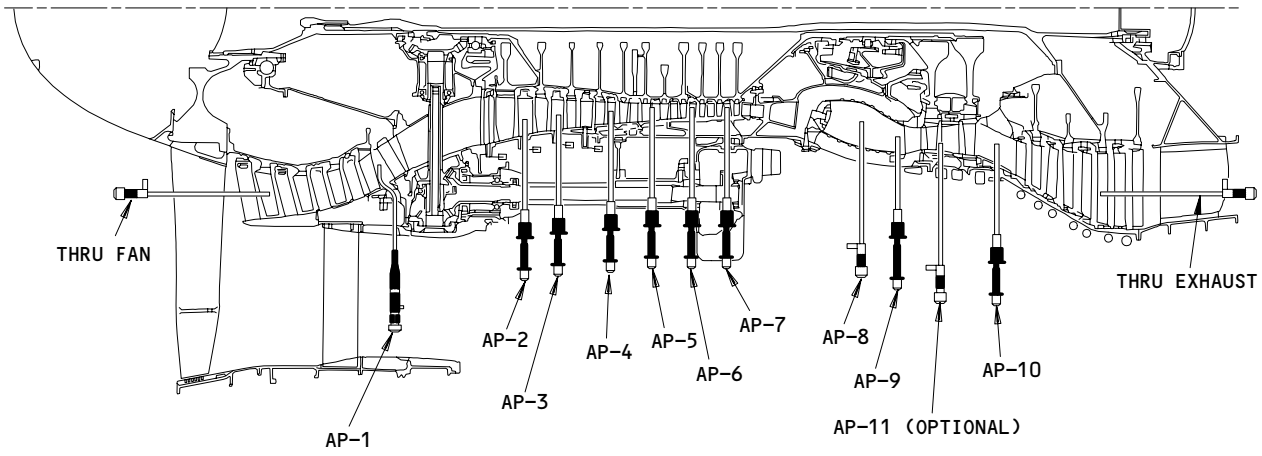


BORESCOPE ACCESS PORT
LOCATIONS - LEFT SIDE



BORESCOPE ACCESS PORT
LOCATIONS - RIGHT SIDE

Borescope Access Port Data
Figure 605 (Sheet 3)



ACCESS PORT GASPATH LOCATION

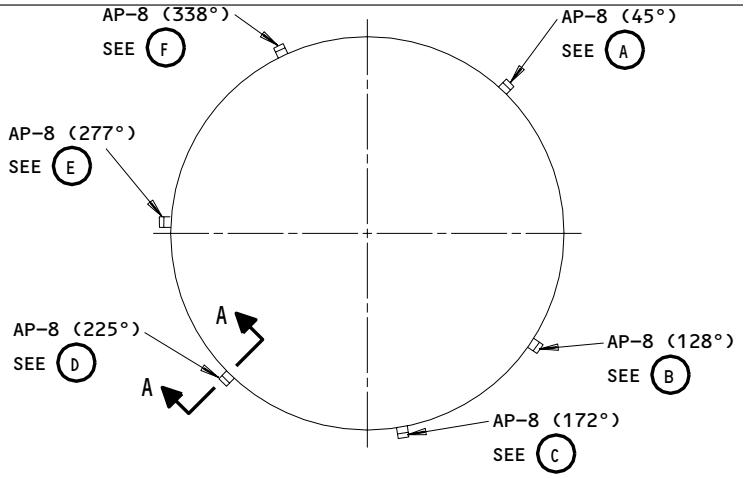
L-A0640
0688

Borescope Access Port Data
Figure 605 (Sheet 4)

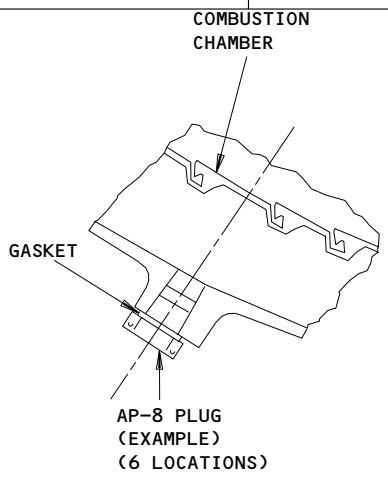
ACCESS PORT	ENGINE LOCATION	PACKING/ GASKET	LOCKING METHOD	PLUG LUBRICANT	TORQUE VALUE INCH-POUNDS (NEWTON-METERS)
AP-2	HPC 5TH-STAGE VANE	NO	SELF-LOCKING INSERT FOR EARLIER PLUG KEY WASHER (PN 53H027) FOR LATER PLUG	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-3	HPC 6TH-STAGE VANE	NO	SELF-LOCKING INSERT FOR EARLIER PLUG KEY WASHER (PN 53H028) FOR LATER PLUG	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-4	HPC 8TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (OUTER)	HPC 10TH-STAGE VANE	NO	3 KEY WASHER (MS 9582-19)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (OUTER)	HPC 10TH-STAGE VANE	NO	4 KEY WASHER (58H216)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-5 (INNER)	HPC 10TH-STAGE VANE	NO	PLUG ASSEMBLY WITH INTEGRAL LOCK WASHER	ANTIGALLING COMPOUND 1	175-190 (19.8-21.5)
AP-5 (INNER)	HPC 10TH-STAGE VANE	NO	PLUG ASSEMBLY WITH INTEGRAL LOCK WASHER	2 4 6	175-190 (19.8-21.5)
AP-6	HPC 12TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-7 (OUTER)	HPC 14TH-STAGE VANE	NO	3 KEY WASHER (MS 9582-19)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-7 (OUTER)	HPC 14TH-STAGE VANE	NO	4 KEY WASHER (58H216)	ANTIGALLING COMPOUND	175-190 (19.8-21.5)
AP-7 (INNER)	HPC 10TH-STAGE VANE	NO	SELF-LOCKING INSERT	ANTIGALLING COMPOUND 1	175-190 (19.8-21.5)
AP-7 (INNER)	HPC 10TH-STAGE VANE	NO	SELF-LOCKING INSERT	2 4 6	175-190 (19.8-21.5)
AP-8 (45)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (128)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (172)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (225)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (277)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-8 (338)	DIFFUSER CASE	GASKET	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-9	REAR OF DIFFUSER CASE	WASHER	LOCKWIRE	SILVER GOOP	40-50 (4.5-5.6)
AP-10	2ND-STAGE HPT BLADE	GASKET	LOCKWIRE	SILVER GOOP	54-60 (6.1-6.8)
AP-11 5	1ST-STAGE HPT BLADE	GASKET	LOCKWIRE	ENGINE OIL ON BOLT THREADS	75-85 (8.5-9.6)

1 ENGINES PRE-PW-SB 72-675
2 ENGINES POST-PW-SB 72-675
3 ENGINES PRE-PW-SB 72-708
4 ENGINES POST-PW-SB 72-708
5 ENGINES POST-PW-SB 72-157
6 ENGINES POST-PW-SB 72-755

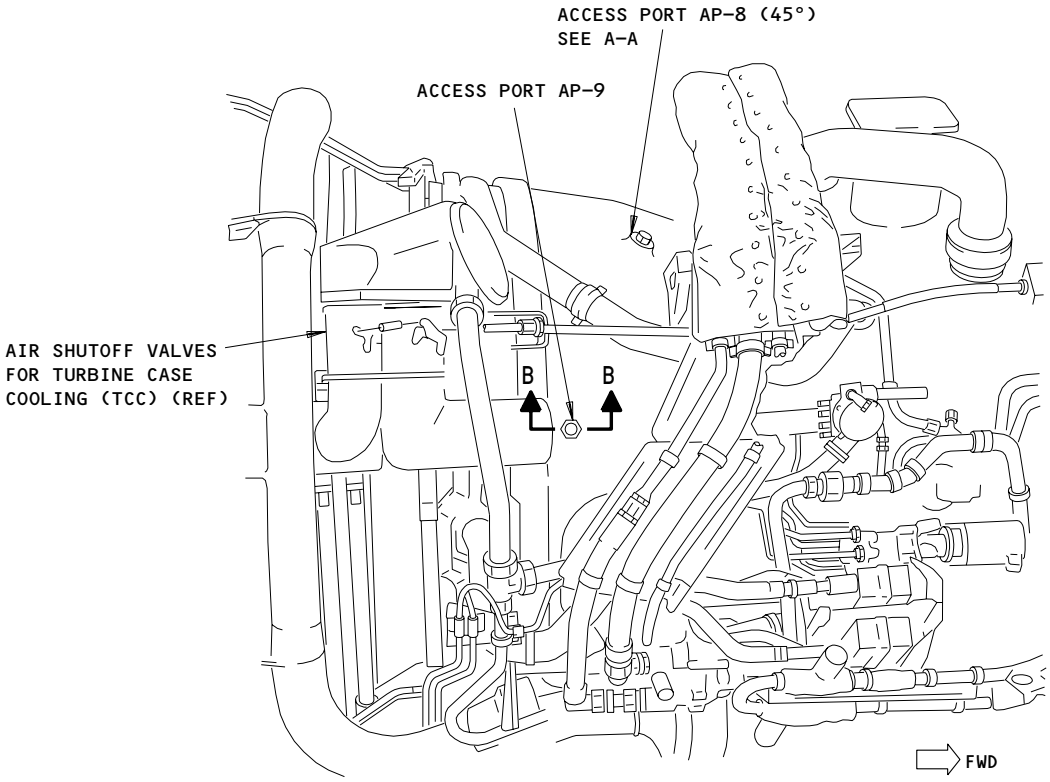
Borescope Access Port Installation Data
Figure 605A



AP-8 PORT LOCATIONS
(VIEW IN THE FORWARD DIRECTION)

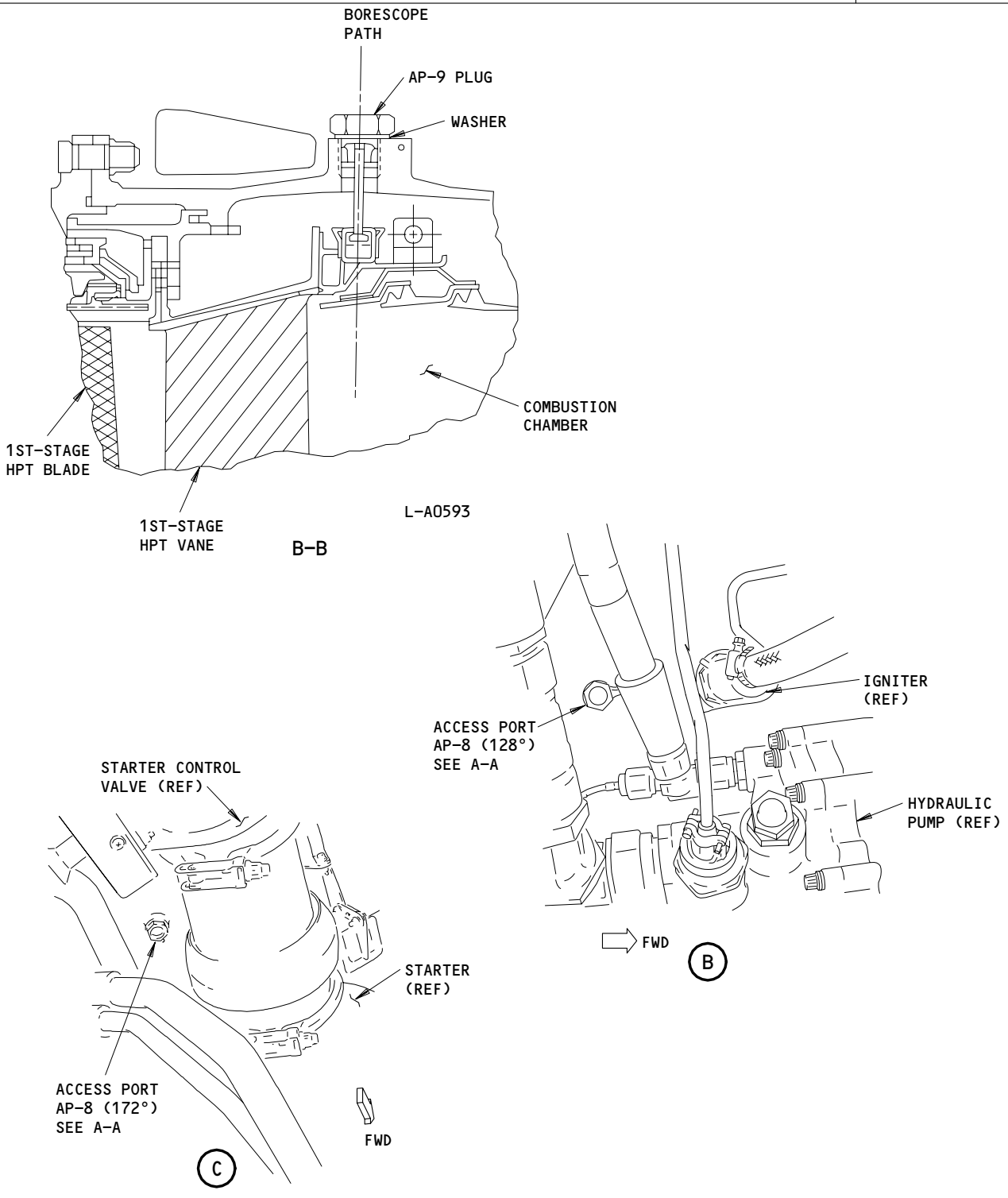


A-A

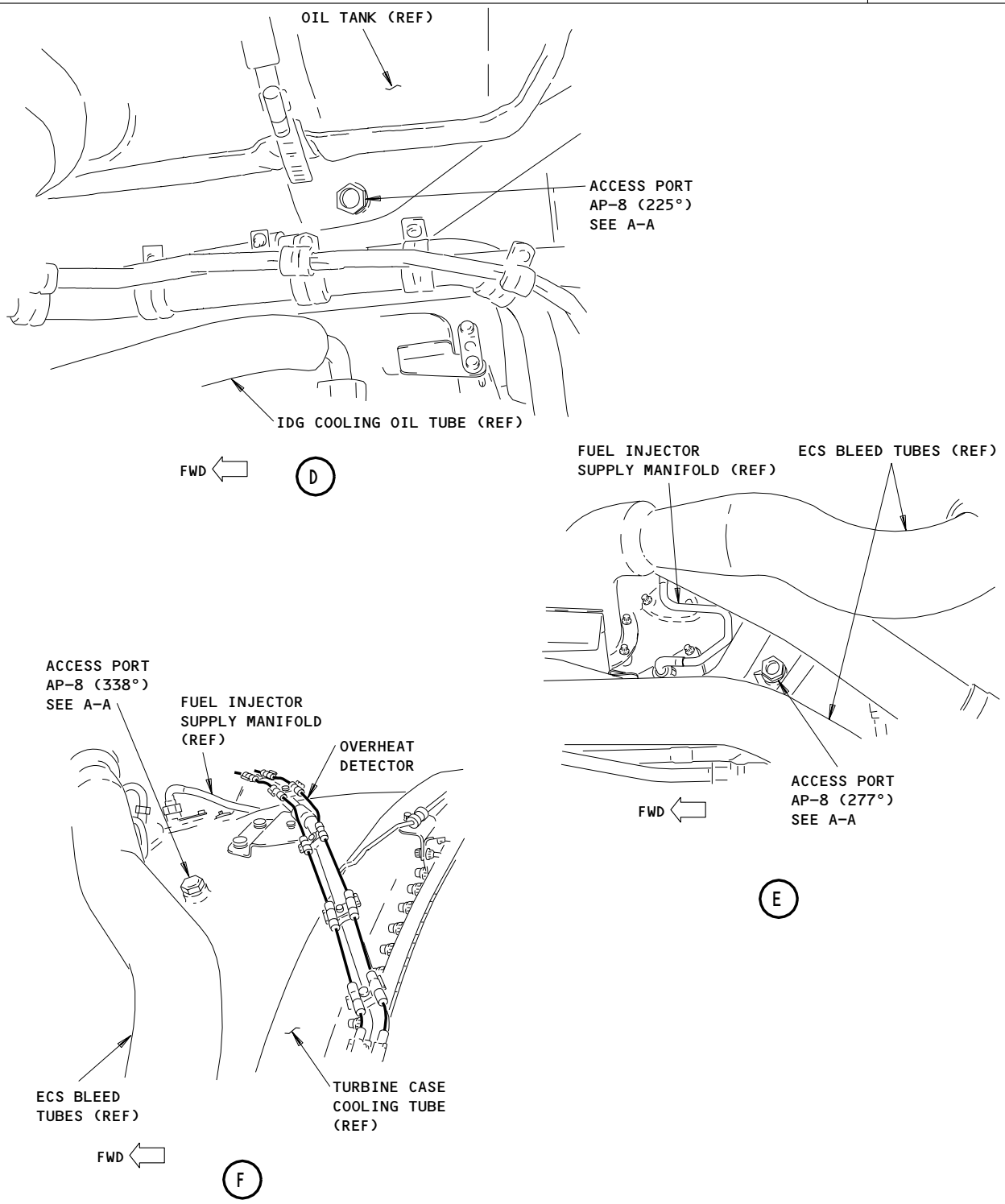


DIFFUSER CASE
A

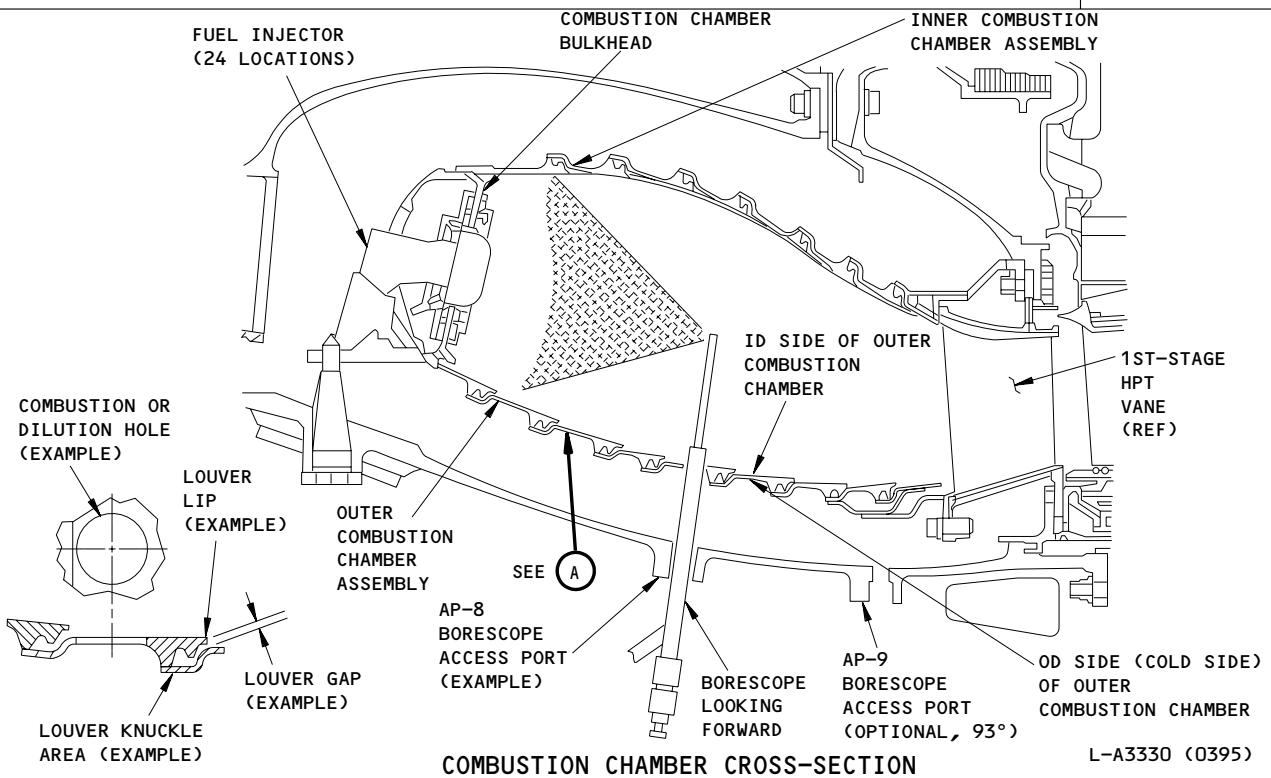
Combustion Chamber Access Ports
Figure 611 (Sheet 1)



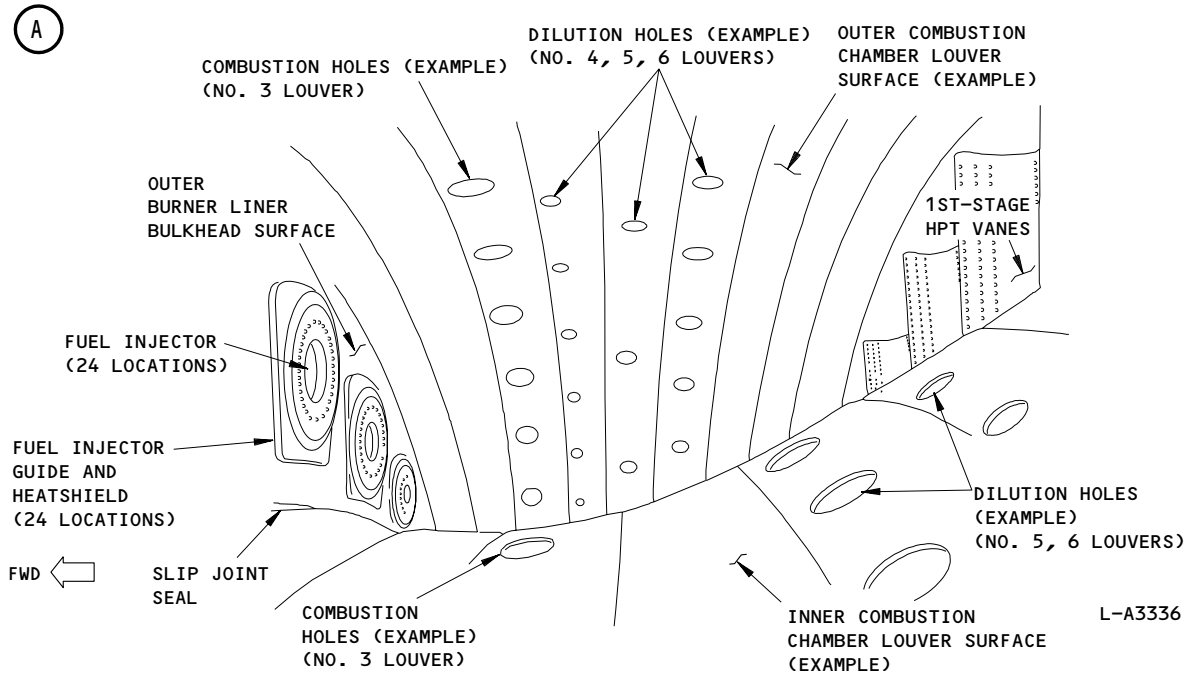
Combustion Chamber Access Ports
Figure 611 (Sheet 2)



Combustion Chamber Access Ports
Figure 611 (Sheet 3)

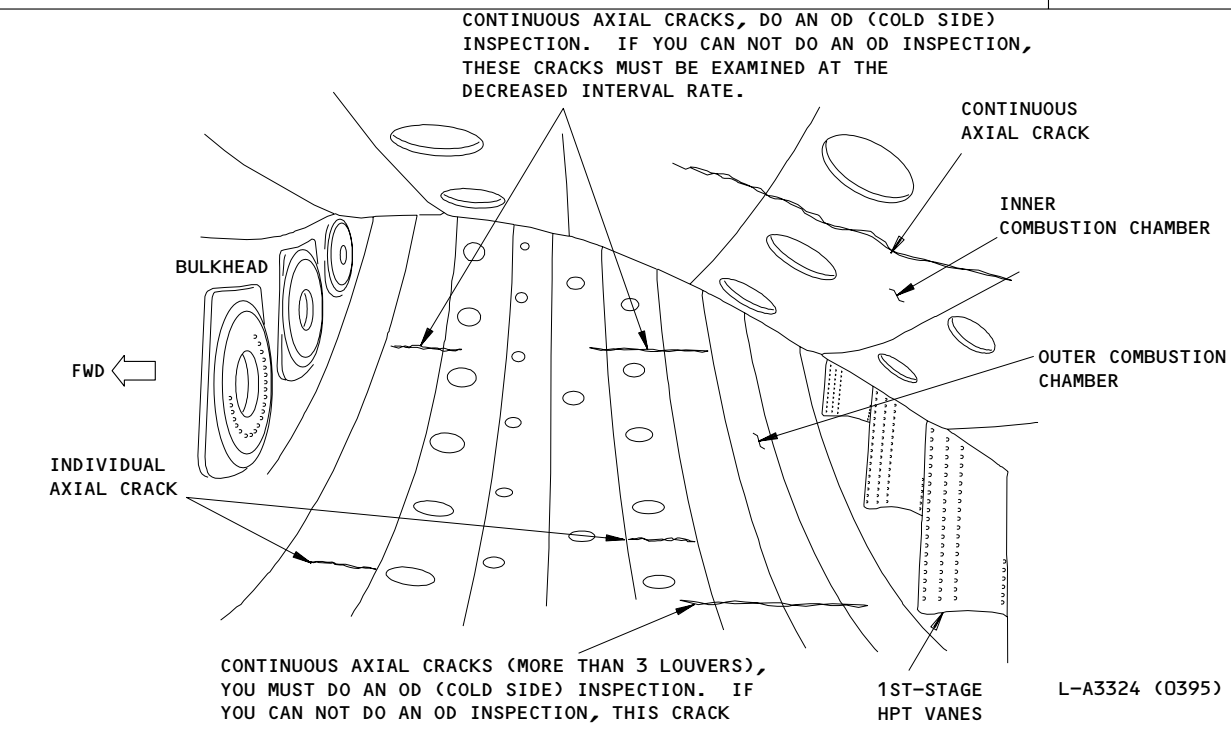


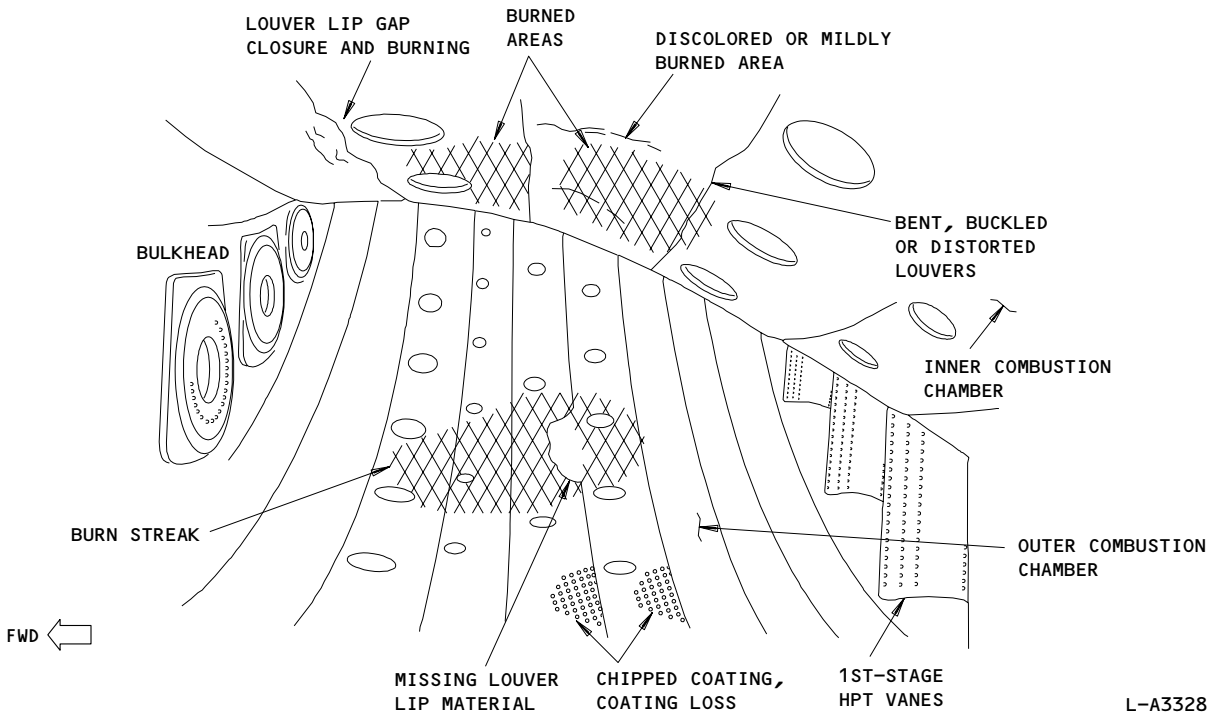
COMBUSTION CHAMBER CROSS-SECTION



COMBUSTION CHAMBER INTERNALS
VIEW LOOKING CIRCUMFERENTIALLY

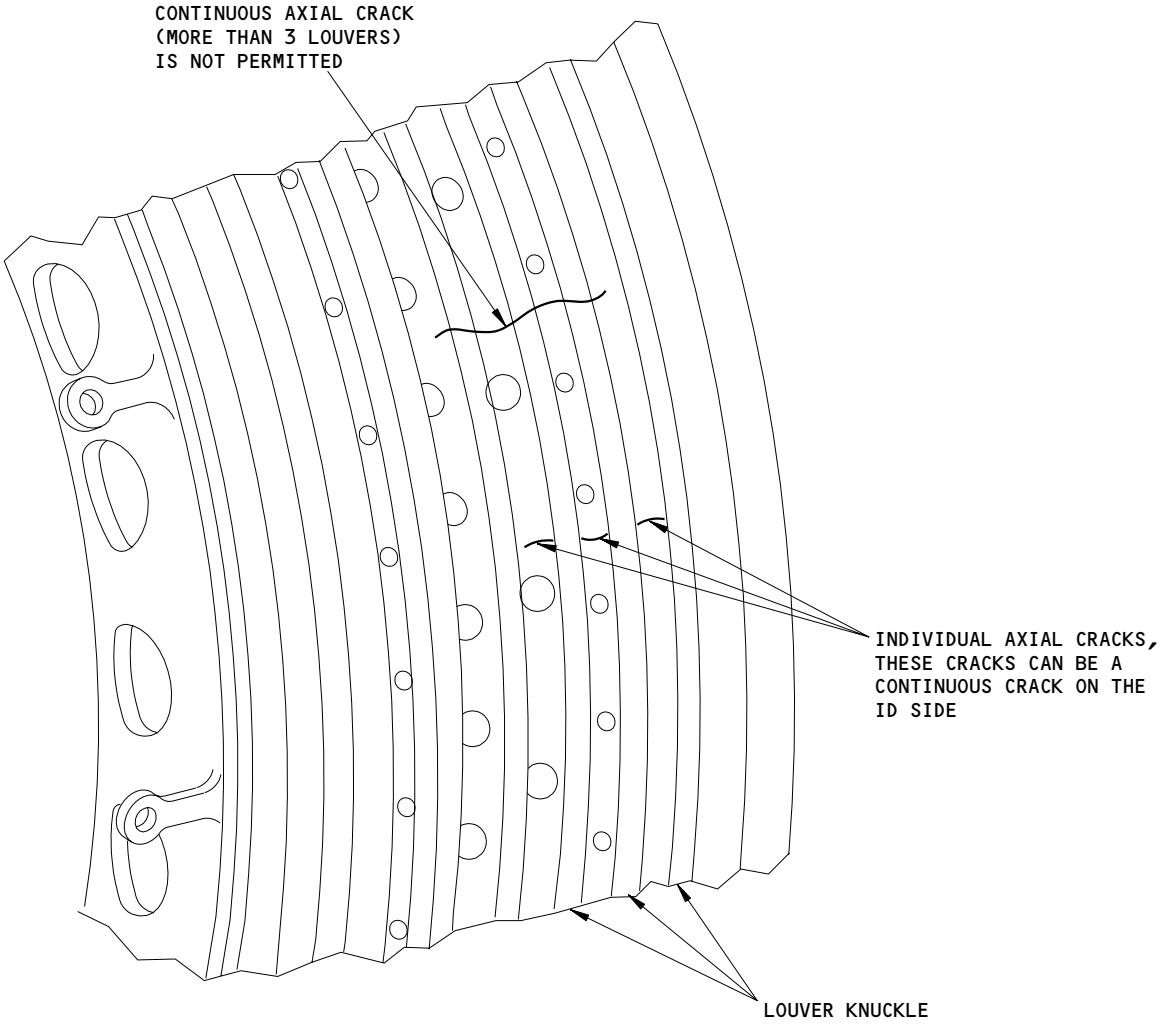
Combustion Chamber Components
Figure 612





VIEW IN THE CIRCUMFERENTIAL DIRECTION

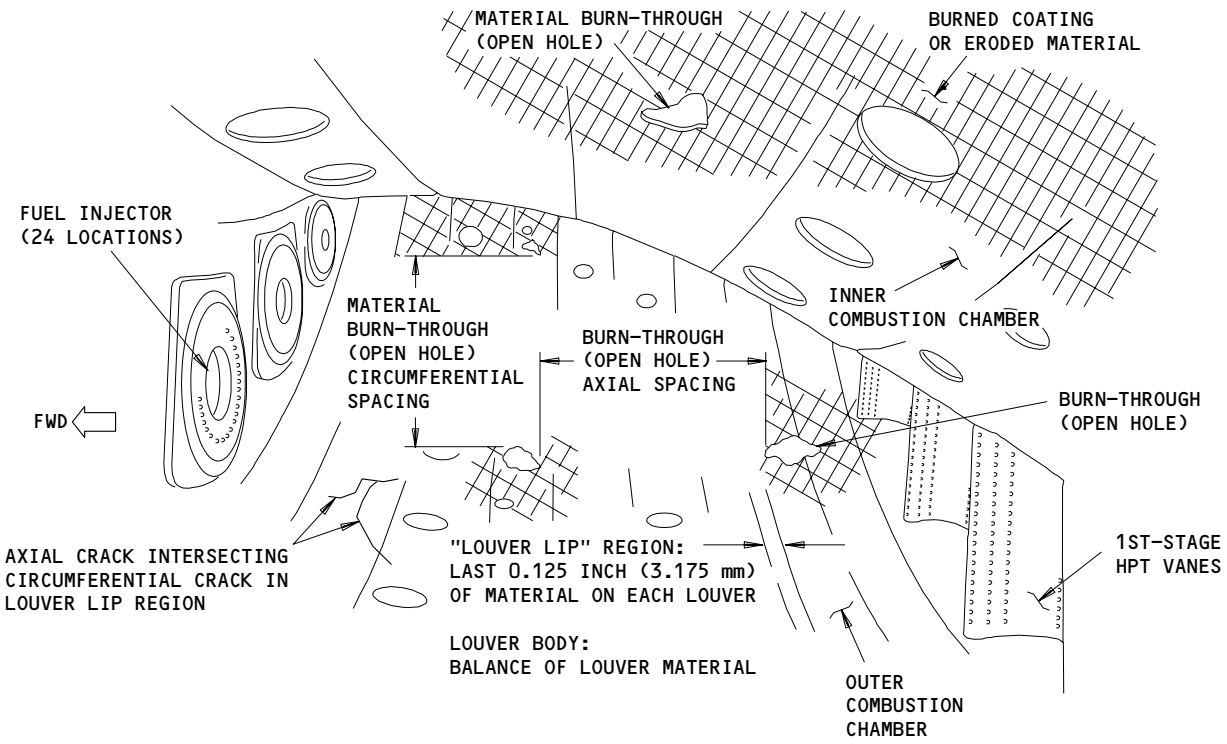
Inner and Outer Combustion Chamber Distress
Figure 613 (Sheet 1)



OD (COLD SIDE) VIEW OF OUTER
COMBUSTION CHAMBER

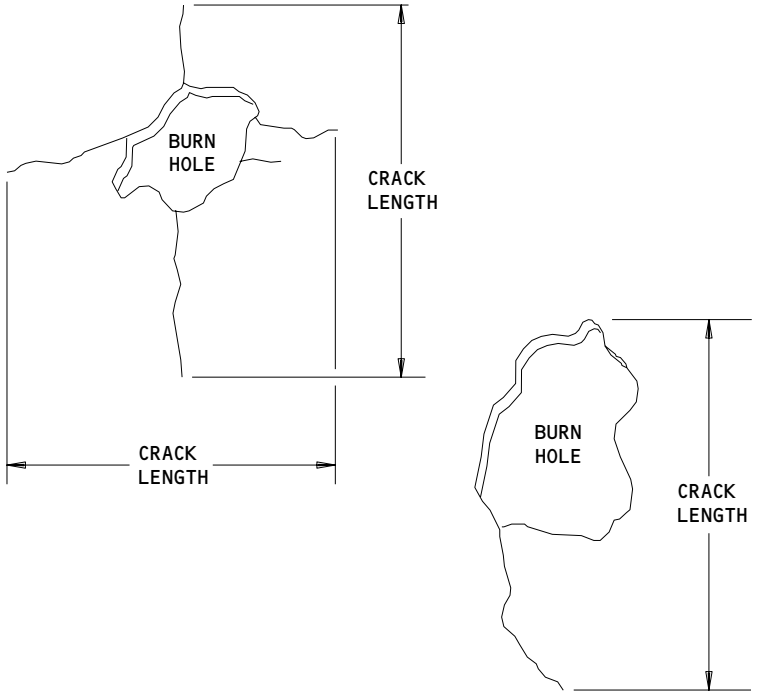
L-B0742 (0000)
PW V

Inner and Outer Combustion Chamber Distress
Figure 613 (Sheet 2)



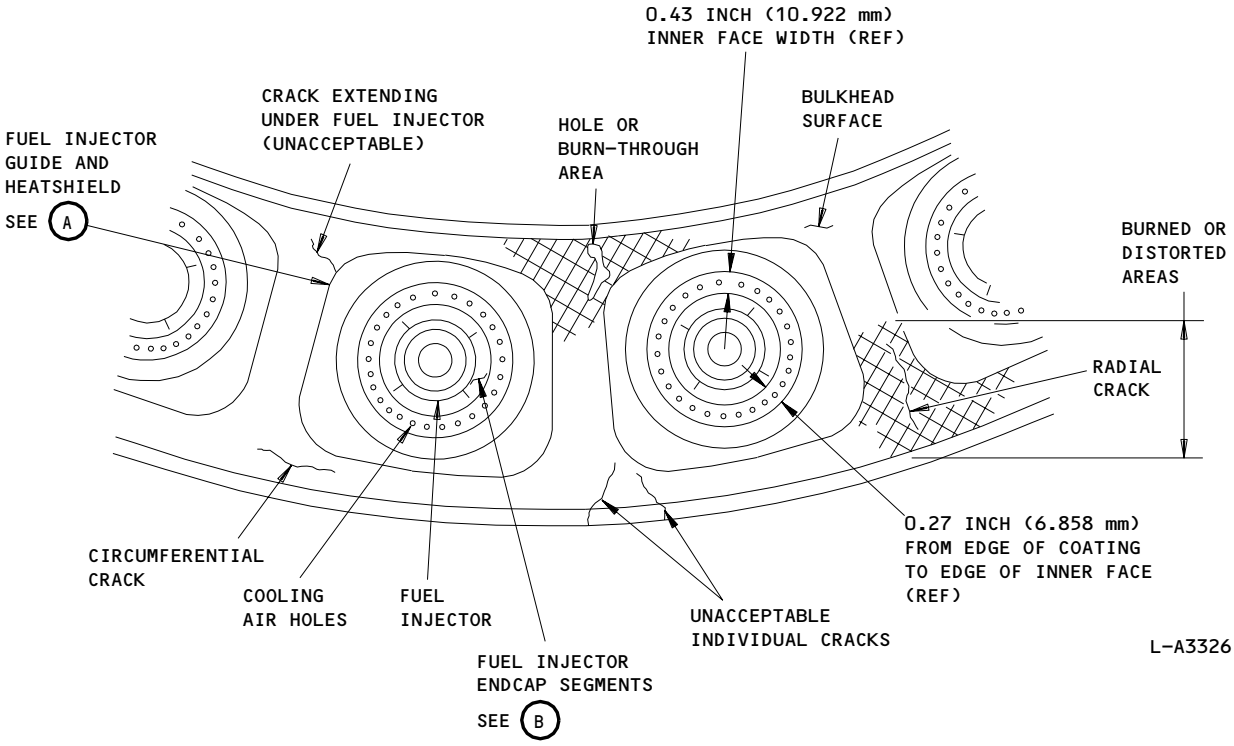
VIEW LOOKING CIRCUMFERENTIALLY

L-A3325



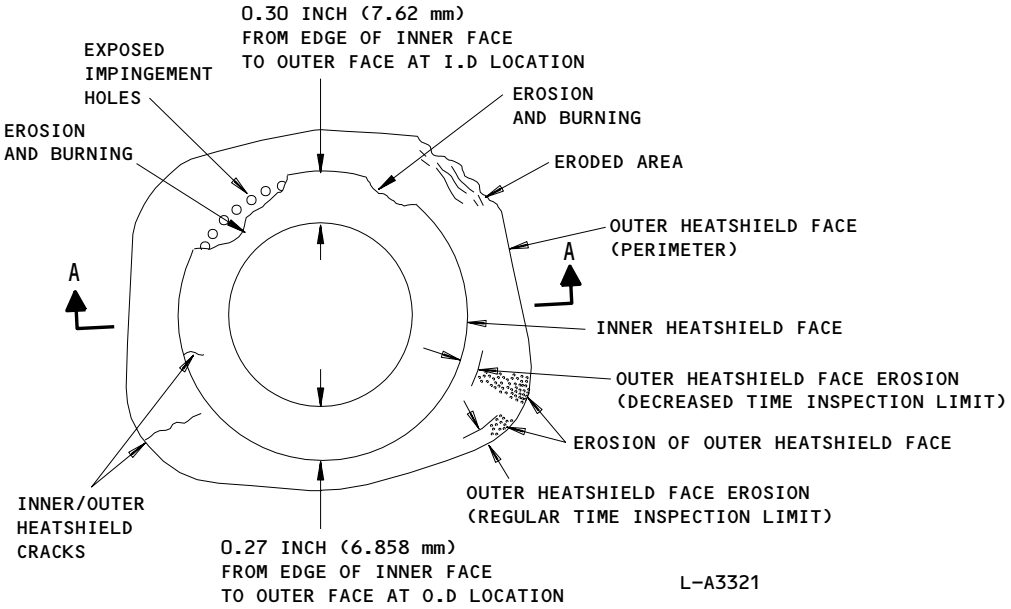
L-A3327

Inner and Outer Combustion Chamber Distress
Figure 613 (Sheet 3)



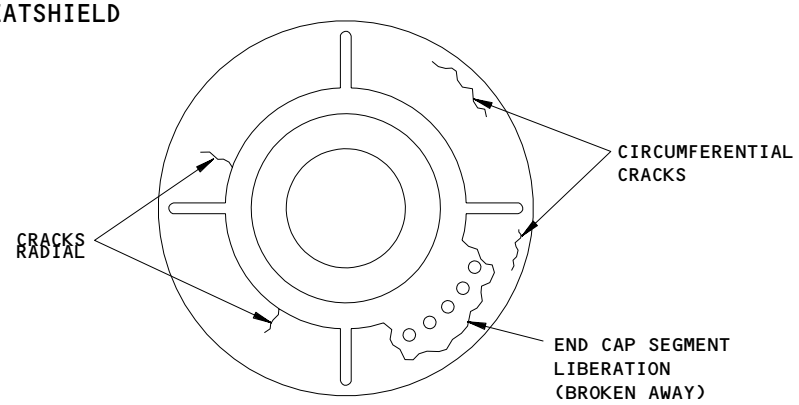
COMBUSTION CHAMBER BULKHEAD

Combustion Chamber Bulkhead and Fuel Injector Guide Heatshield Distress
Figure 614 (Sheet 1)



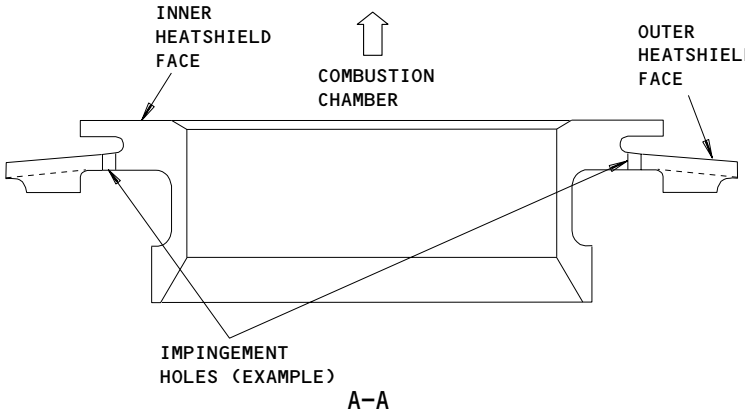
FUEL INJECTOR GUIDE HEATSHIELD

(A)



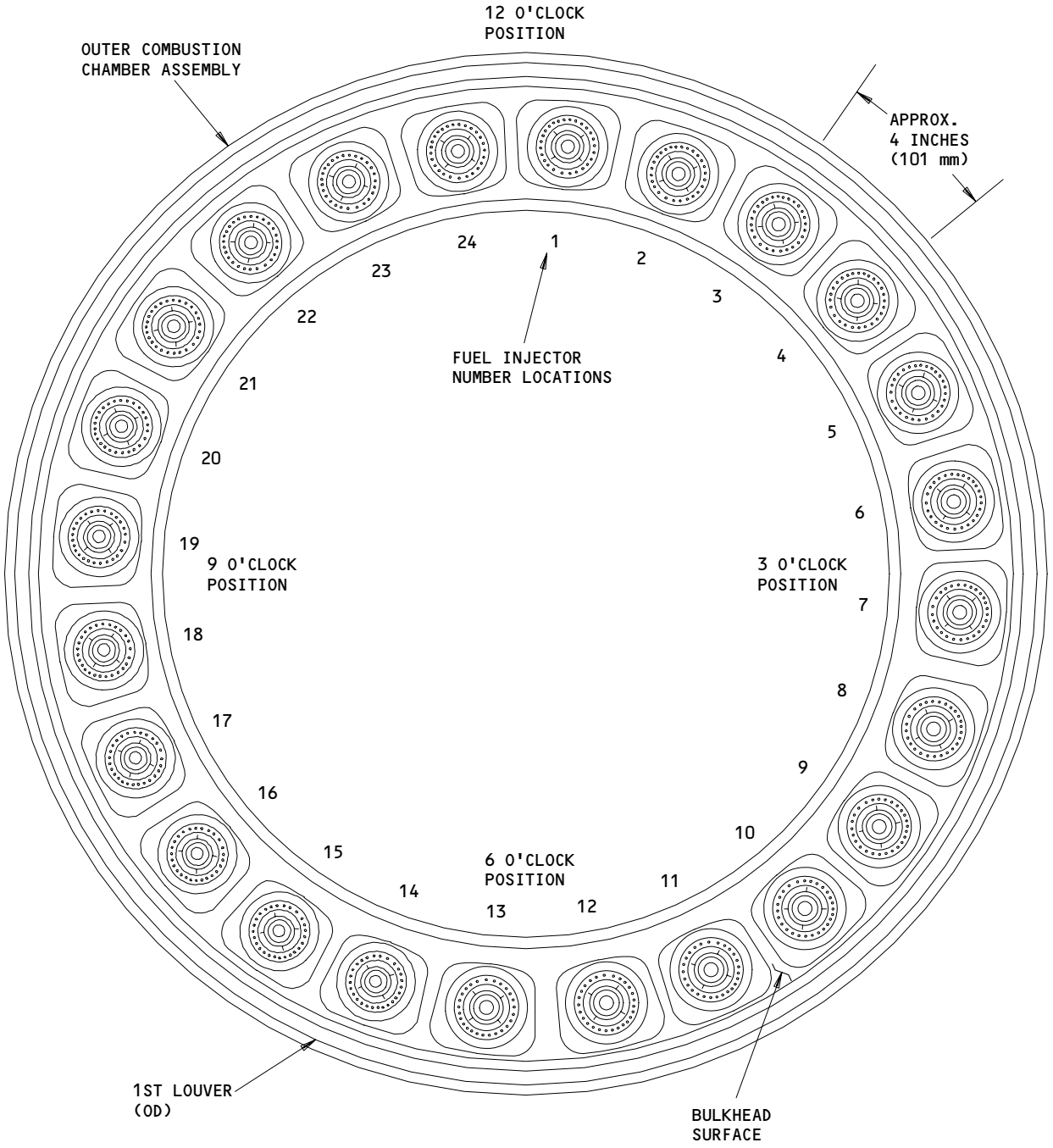
FUEL INJECTOR ENDCAP SEGMENTS

(B)



A-A

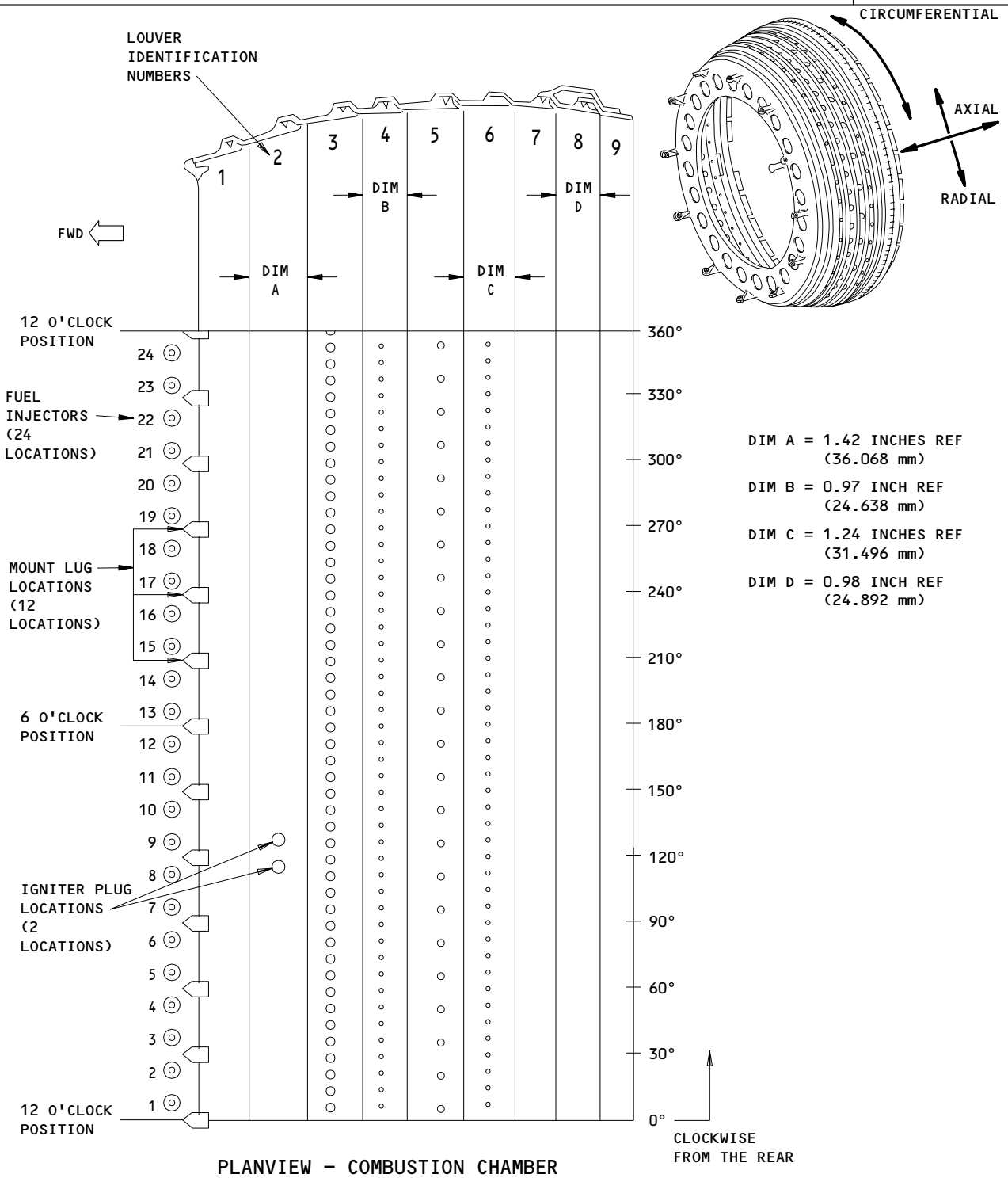
Combustion Chamber Bulkhead and Fuel Injector Guide Heatshield Distress
Figure 614 (Sheet 2)



VIEW IN THE FORWARD DIRECTION

L-A3334

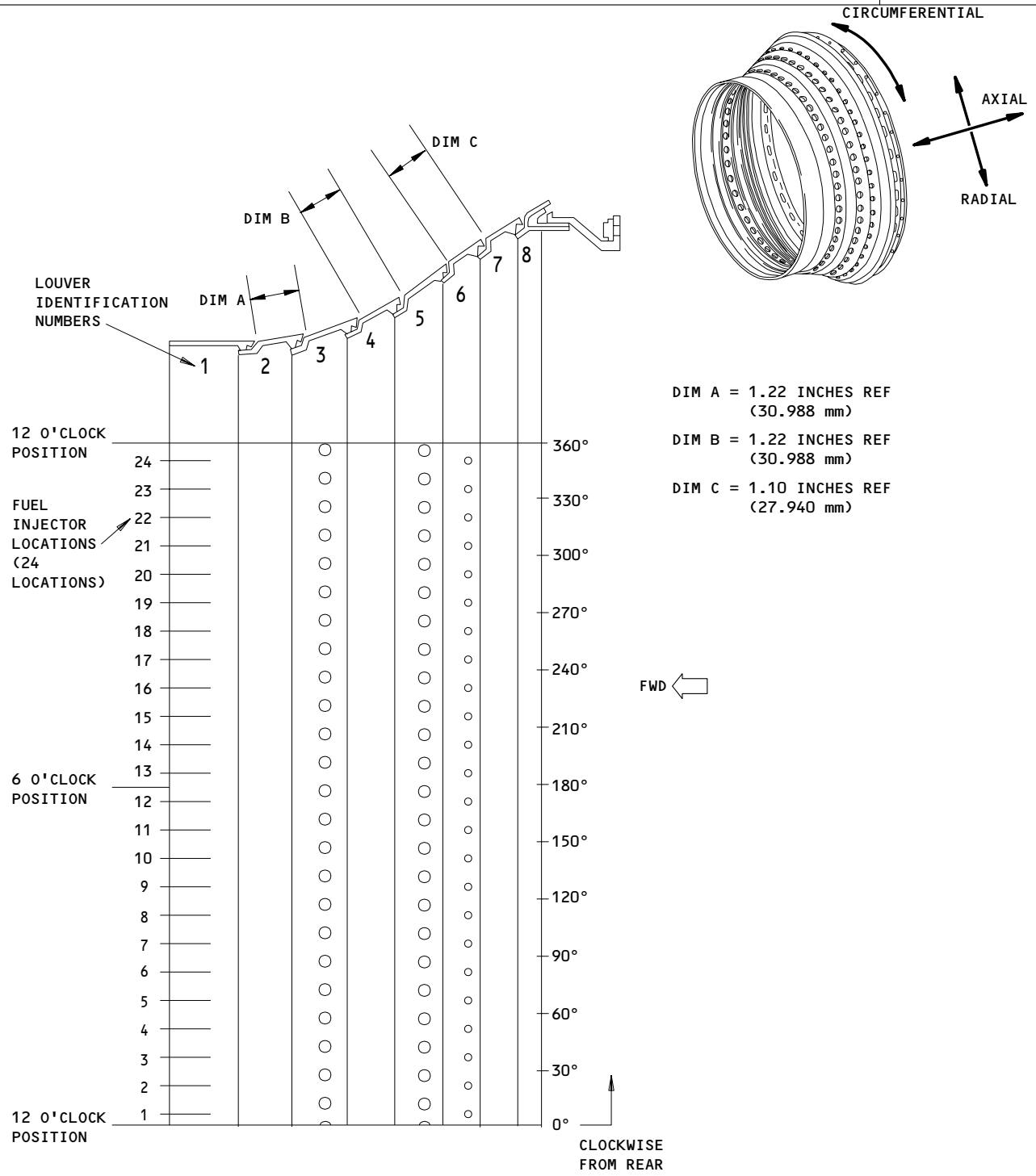
Outer Burner Liner Bulkhead and Fuel Injectors
Figure 615



PLANVIEW – COMBUSTION CHAMBER INTERNAL SURFACE

L-A3337
(0597)

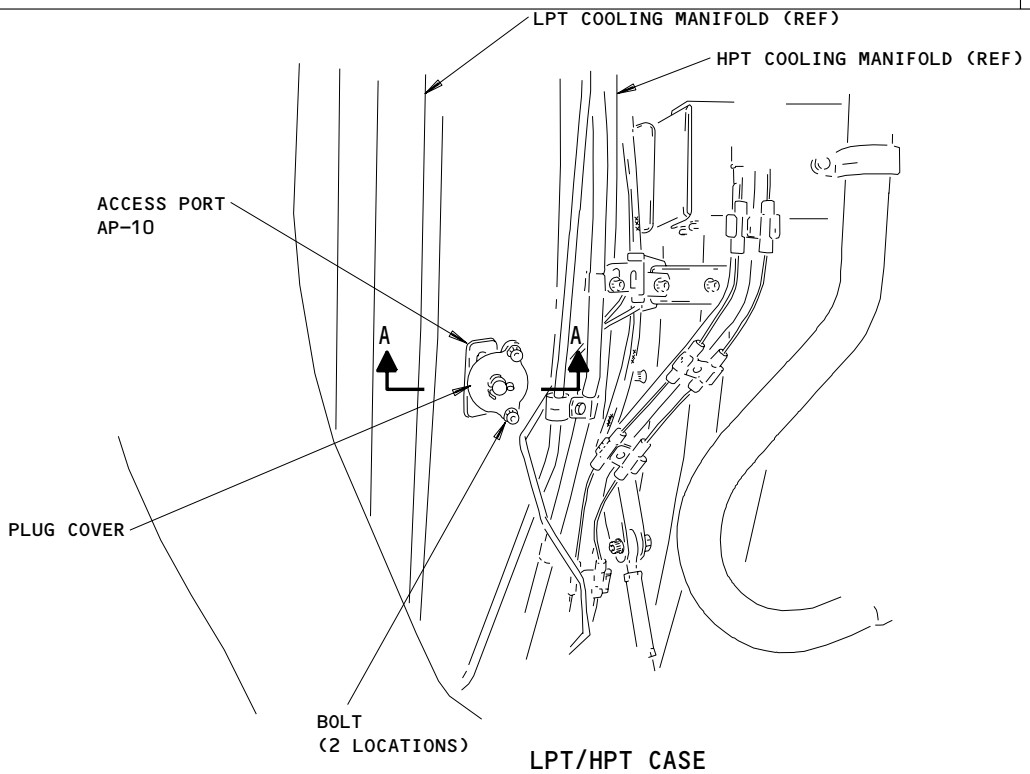
Outer Combustion Chamber
Figure 616



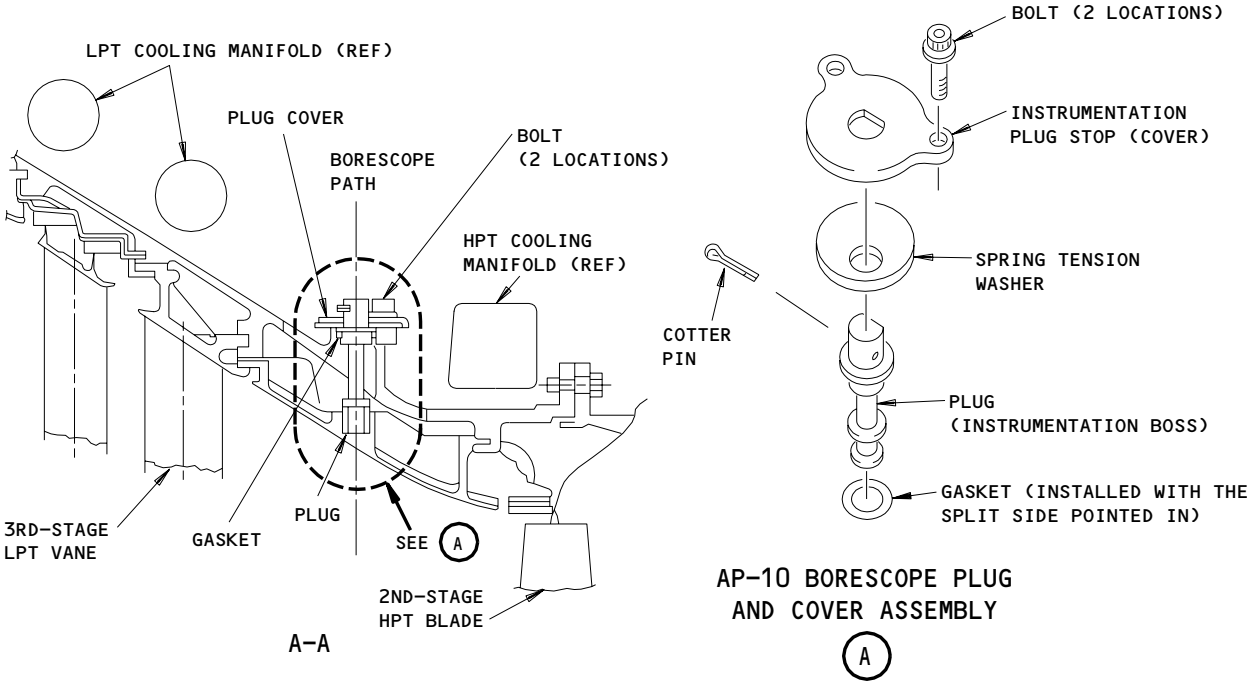
PLANVIEW – COMBUSTION CHAMBER INTERNAL SURFACE

L-A3331
(0597)

Inner Combustion Chamber
Figure 617



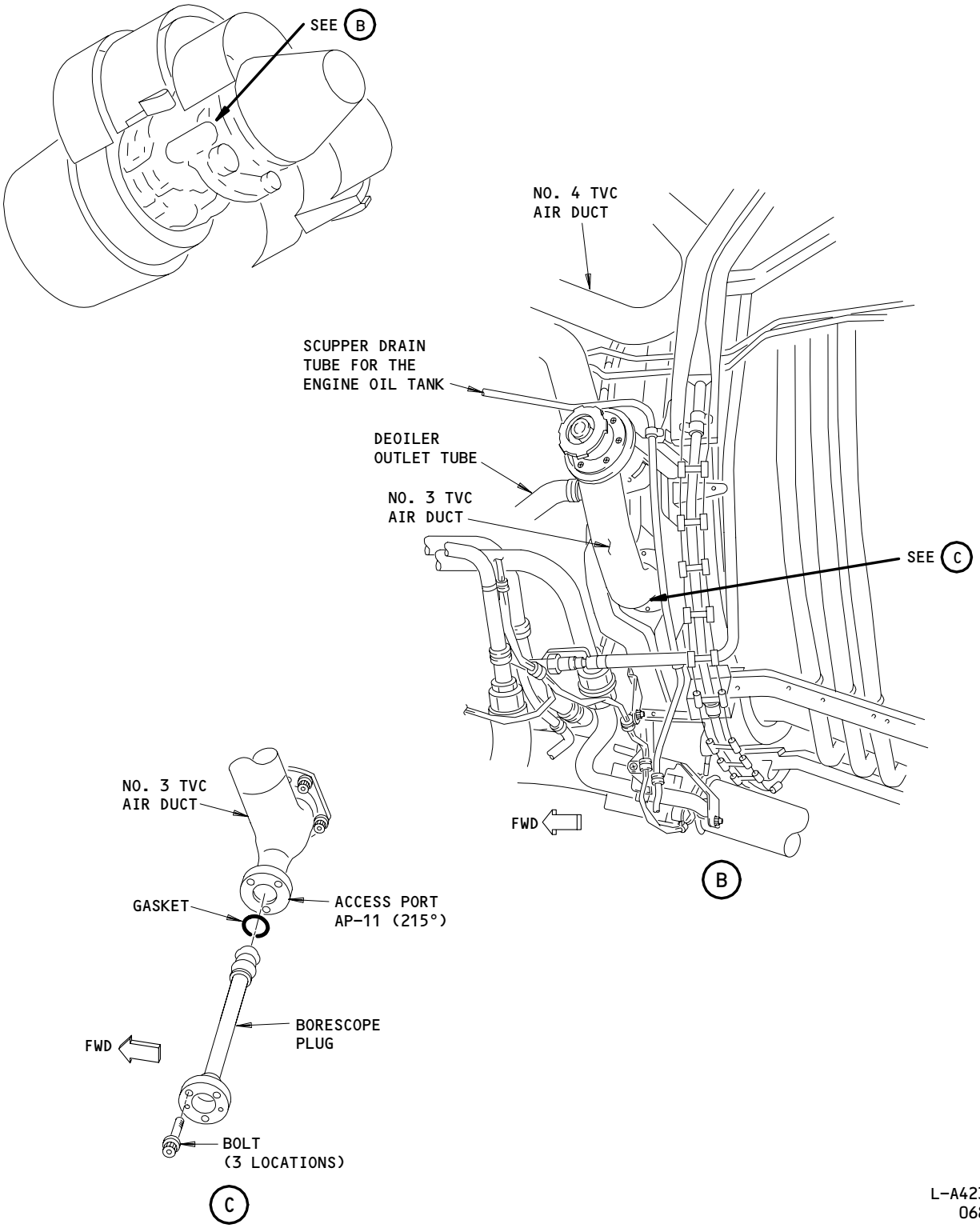
LPT/HPT CASE



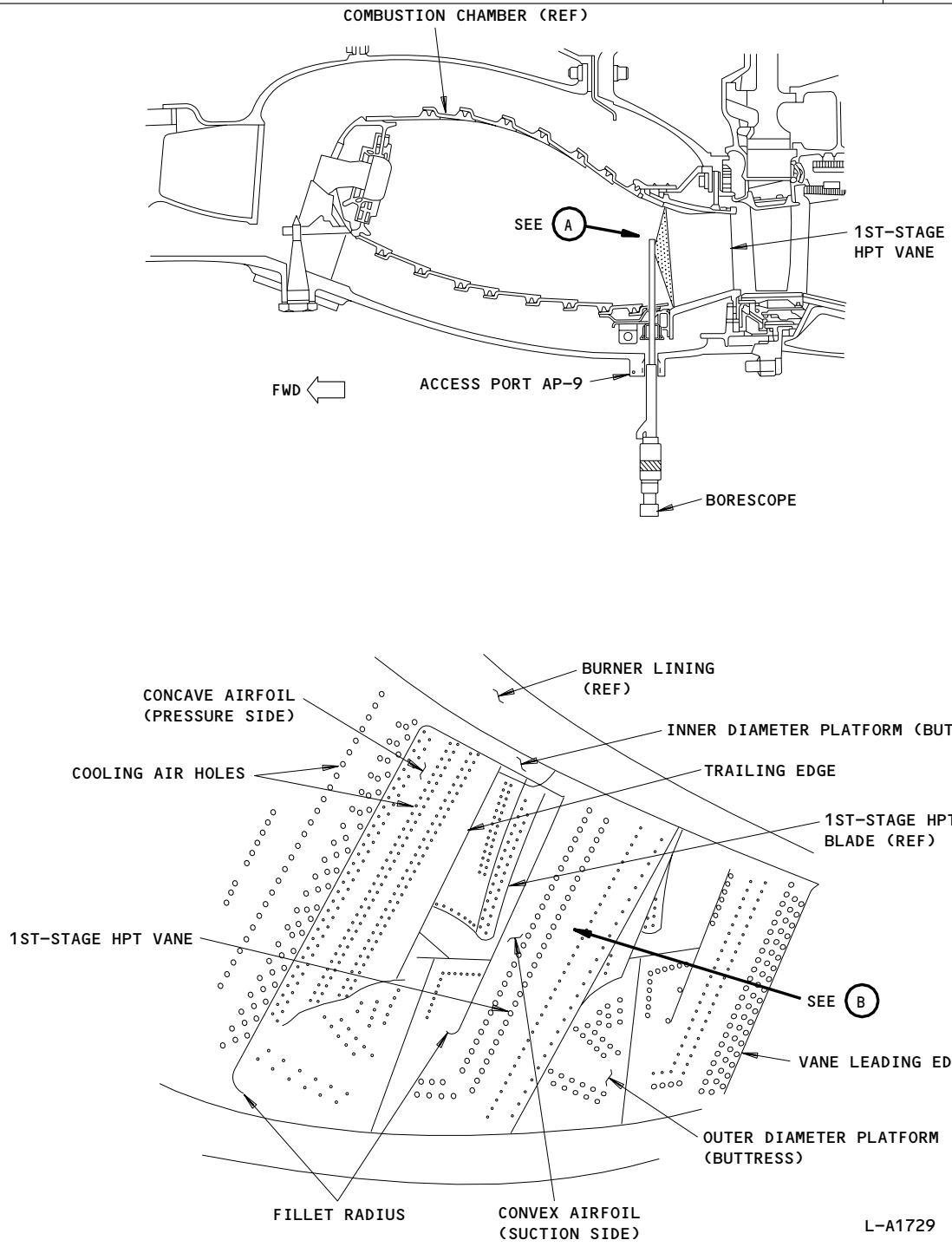
A-A

AP-10 BORESCOPE PLUG
AND COVER ASSEMBLY
A

HPT/LPT Access Port Locations
Figure 618 (Sheet 1)



HPT/LPT Access Port Locations
Figure 618 (Sheet 2)

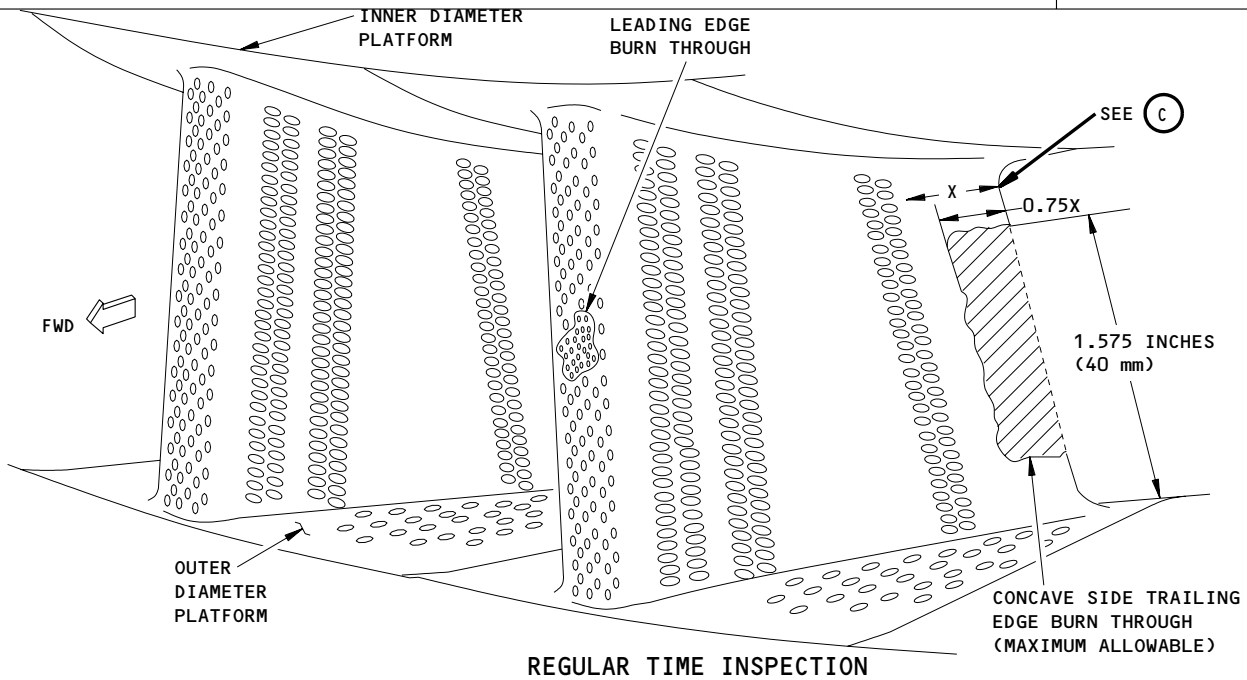


VIEW OF 1ST-STAGE HPT VANES THROUGH BORESCOPE

A

L-A1729 (0192)

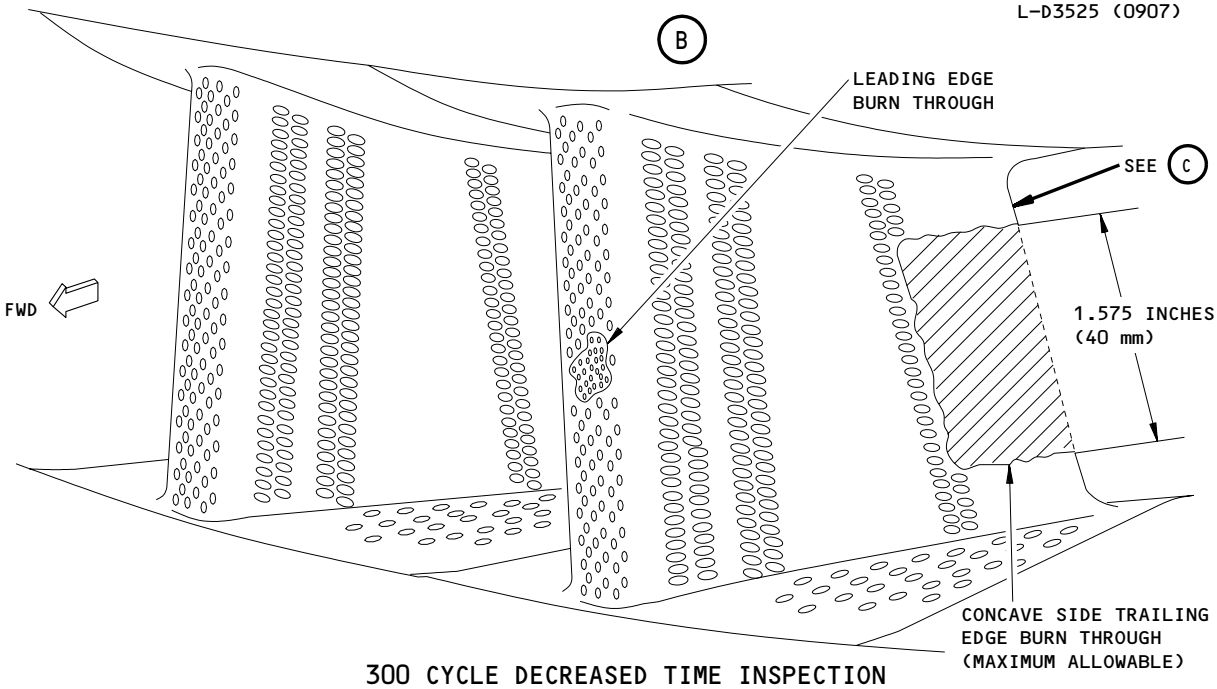
1st-Stage HPT Vane Continue-In-Service Limits
Figure 619 (Sheet 1)



REGULAR TIME INSPECTION
(CONCAVE AIRFOIL SURFACE)

L-D3525 (0907)

B

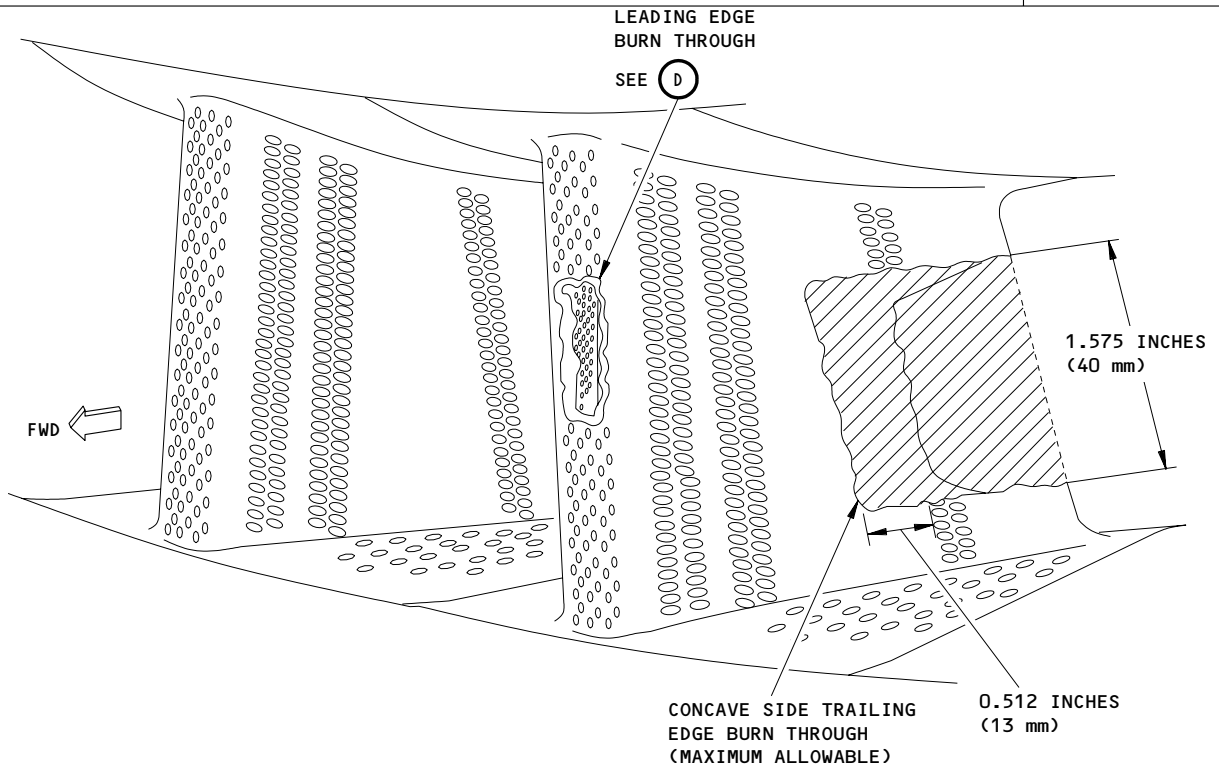


300 CYCLE DECREASED TIME INSPECTION
(CONCAVE AIRFOIL SURFACE)

B

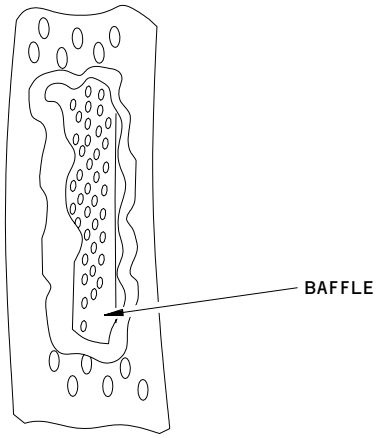
L-D3526 (0907)

1st-Stage HPT Vane Continue-In-Service Limits
Figure 619 (Sheet 2)



150 CYCLE DECREASED TIME INSPECTION
(CONCAVE AIRFOIL SURFACE)

B

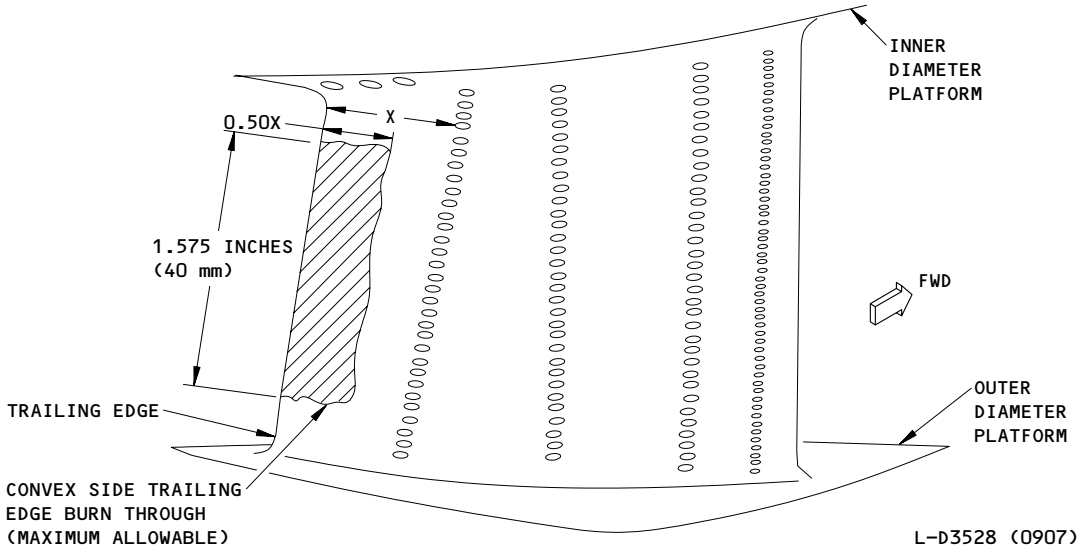


LEADING EDGE BURN THROUGH

D

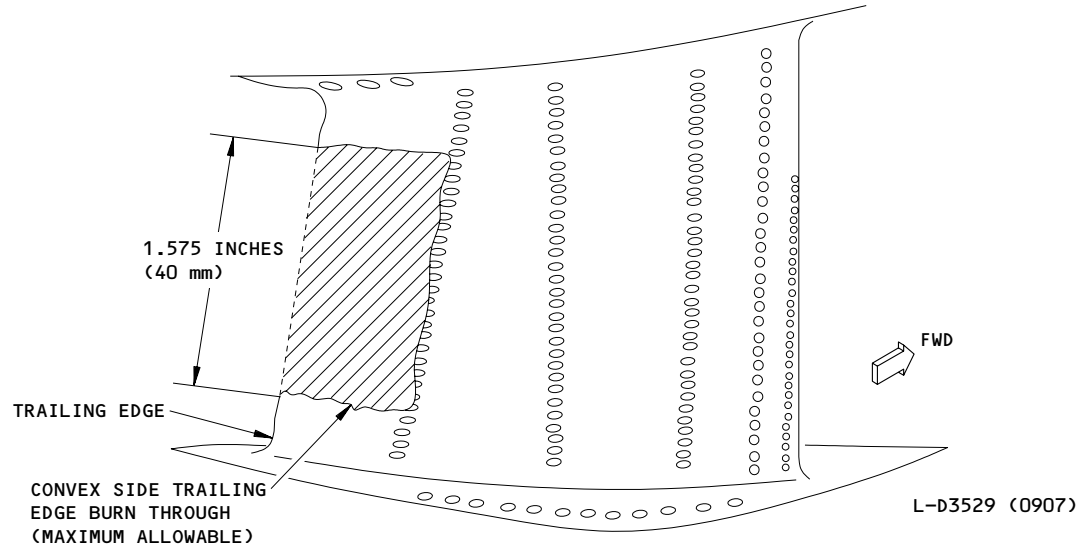
L-D3527 (0907) PWV

1st-Stage HPT Vane Continue-In-Service Limits
Figure 619 (Sheet 3)



RETURN TIME INSPECTION
(CONVEX AIRFOIL SURFACE)

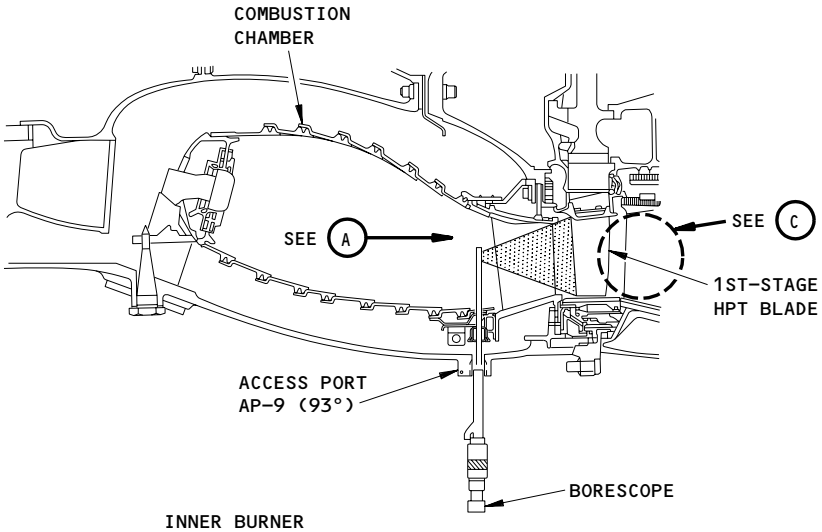
C

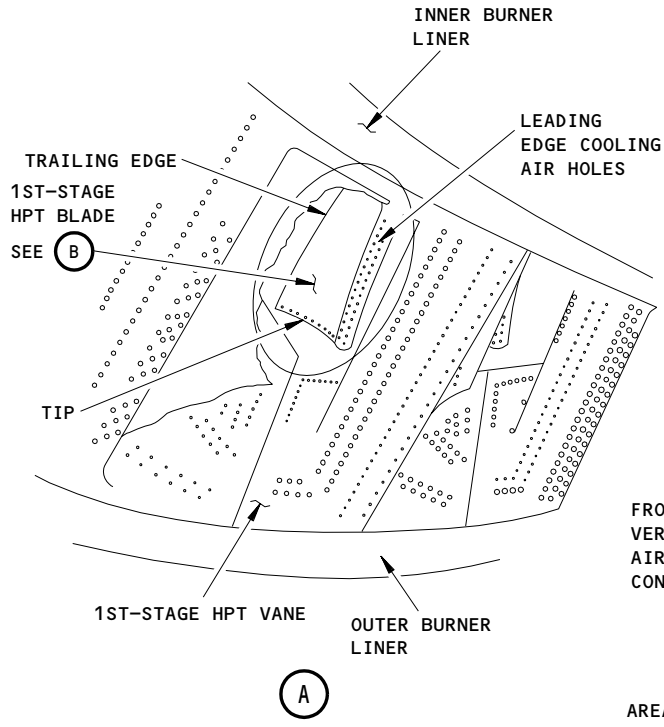


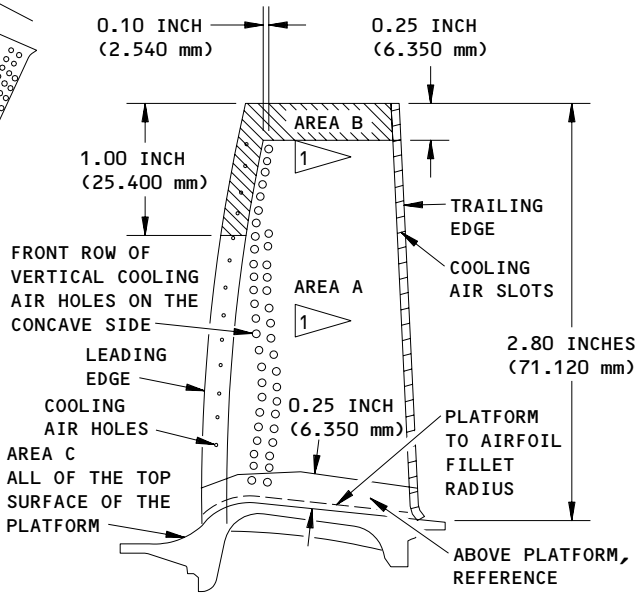
150 CYCLE DECREASED TIME INSPECTION
(CONVEX AIRFOIL SURFACE)

C

1st-Stage HPT Vane Continue-In-Service Limits
Figure 619 (Sheet 4)

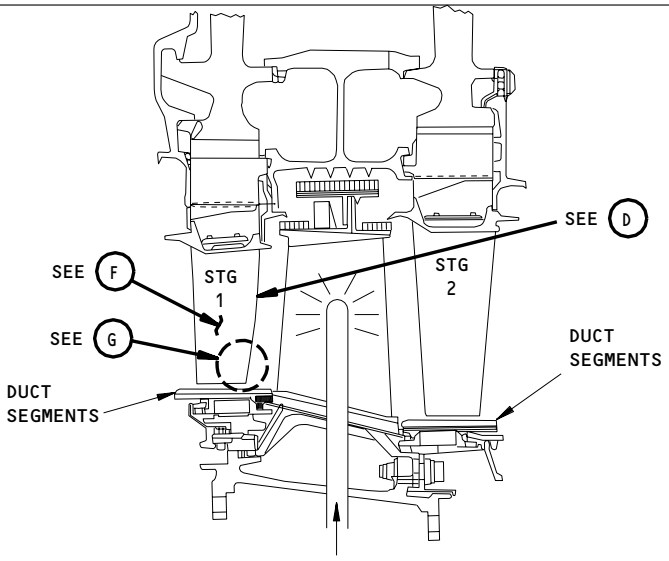




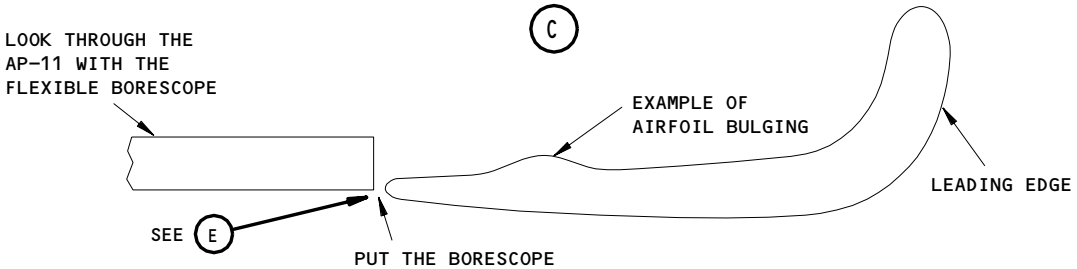


1 AREAS A AND B ARE ON THE CONVEX AND CONCAVE SIDE OF THE BLADE

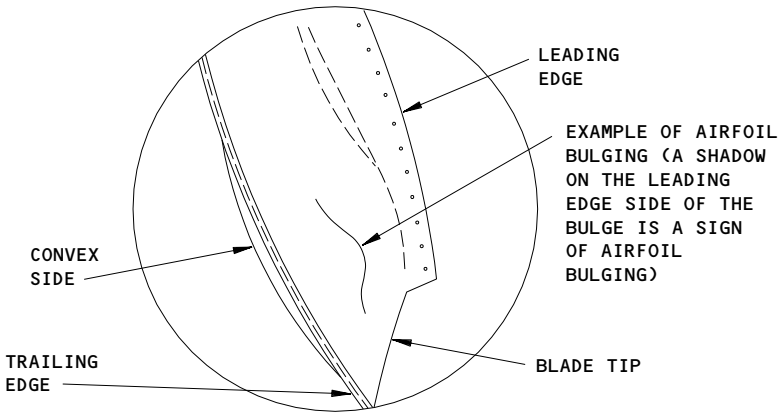
1st-Stage HPT Blade Continue-In-Service Limits
Figure 620 (Sheet 1)



C



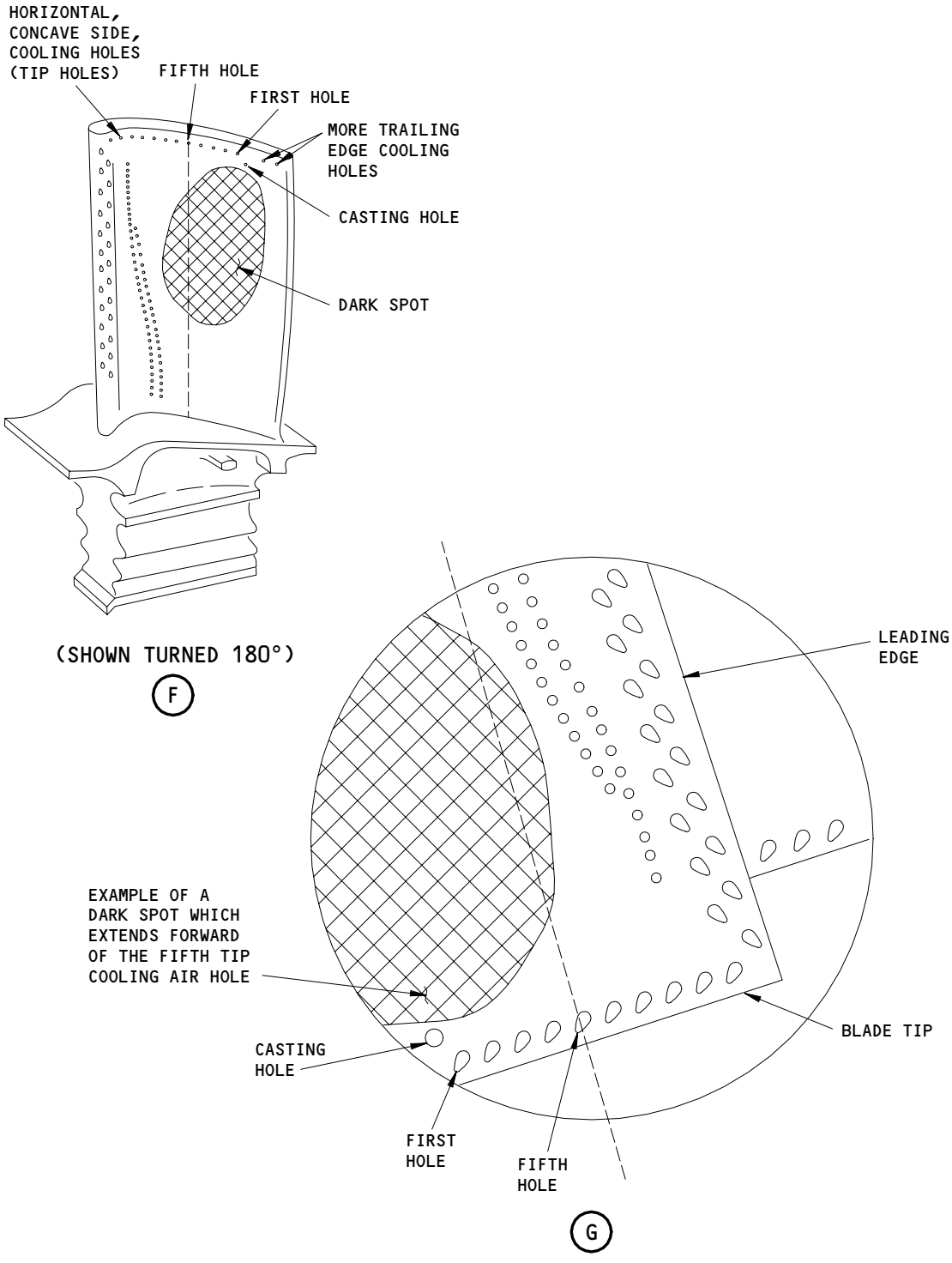
D



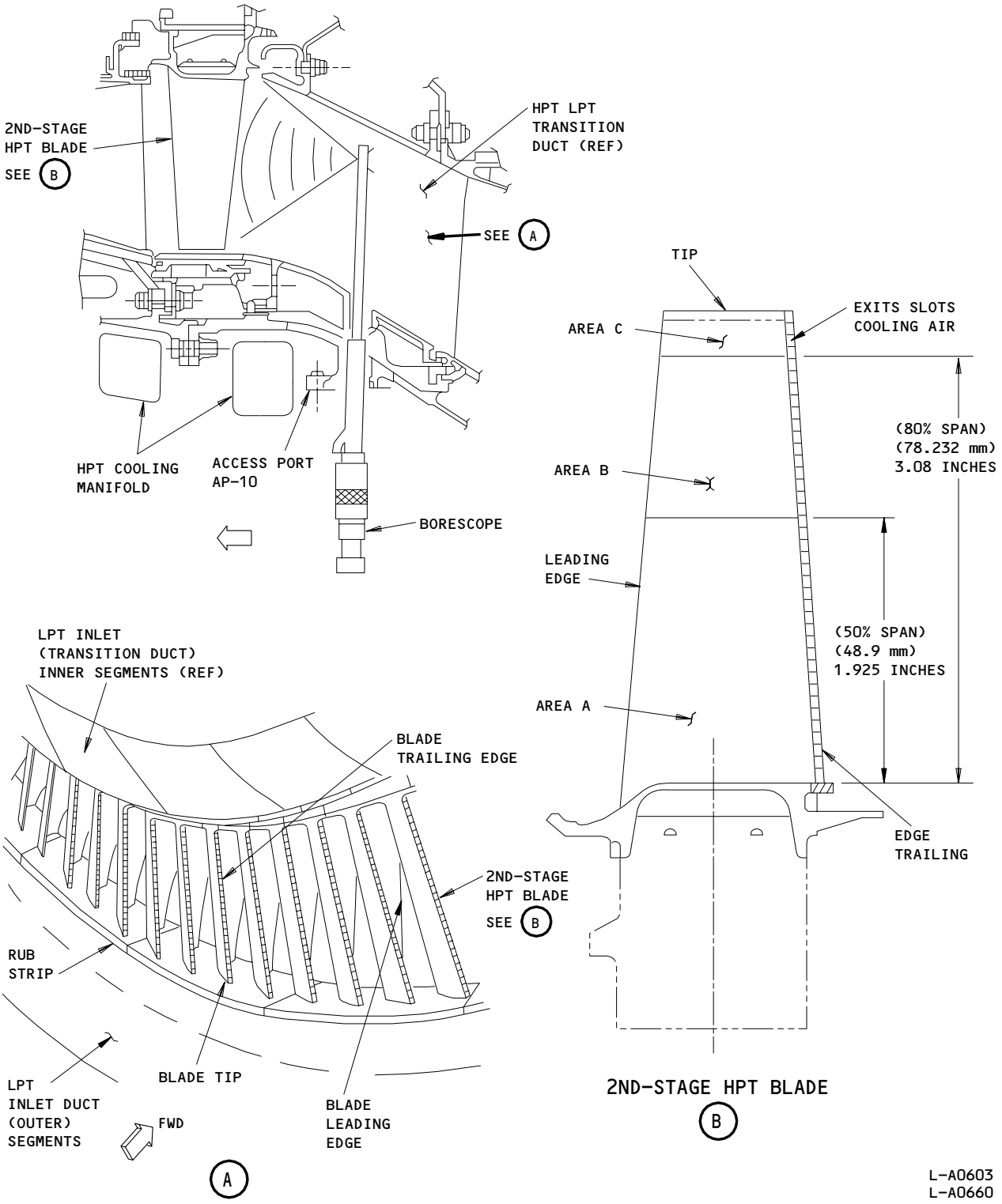
E

L-A7731 (0000)

1st-Stage HPT Blade Continue-In-Service Limits
Figure 620 (Sheet 2)



1st-Stage HPT Blade Continue-In-Service Limits
figure 620 (Sheet 3)



2nd-Stage HPT Blade Continue-In-Service Limits
Figure 621

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-413
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
SHOPS			LIFE LMT NOTE	99XXX	005	FEB 10/88

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
REPLACE	HP TURBINE ROTATING COMPONENTS		ALL	4000

ZONES	ACCESS PANELS

MECH	INSP	MPD ITEM NUMBER

DISCARD THE HIGH PRESSURE TURBINE HUBS, ROTATING AIRSEALS AND BLADE RETAINING PLATES. N72-50-00-A

INTERVAL NOTE: AT MANUFACTURER'S LIFE LIMIT (SEE ENGINE MANUAL, CHAPTER 5).

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-414-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		00250 CYC	10101	006	FEB 10/92

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	6TH STAGE TURBINE VANES AND BLADES		ALL	4000

ZONES	ACCESS PANELS
411	

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 SIXTH STAGE TURBINE VANES AND BLADES FOR CONDITION. N72-53-01-6A

1. General

A. This procedure contains information for the visual inspection of the 6th-stage turbine blades and vanes. To do the inspection, look forward through the turbine exhaust area.

2. Do the 6th-Stage Turbine Blade Inspection

A. Do the inspection of the 6th Stage Blades

(1) Attach the DO-NOT-OPERATE tags to the ENG START switch which is located on the overhead panel P5.

(2) Do a visual check of the 6th-stage turbine blades for foreign object damage. Compare the damage with the limits which are given in Fig. 601.

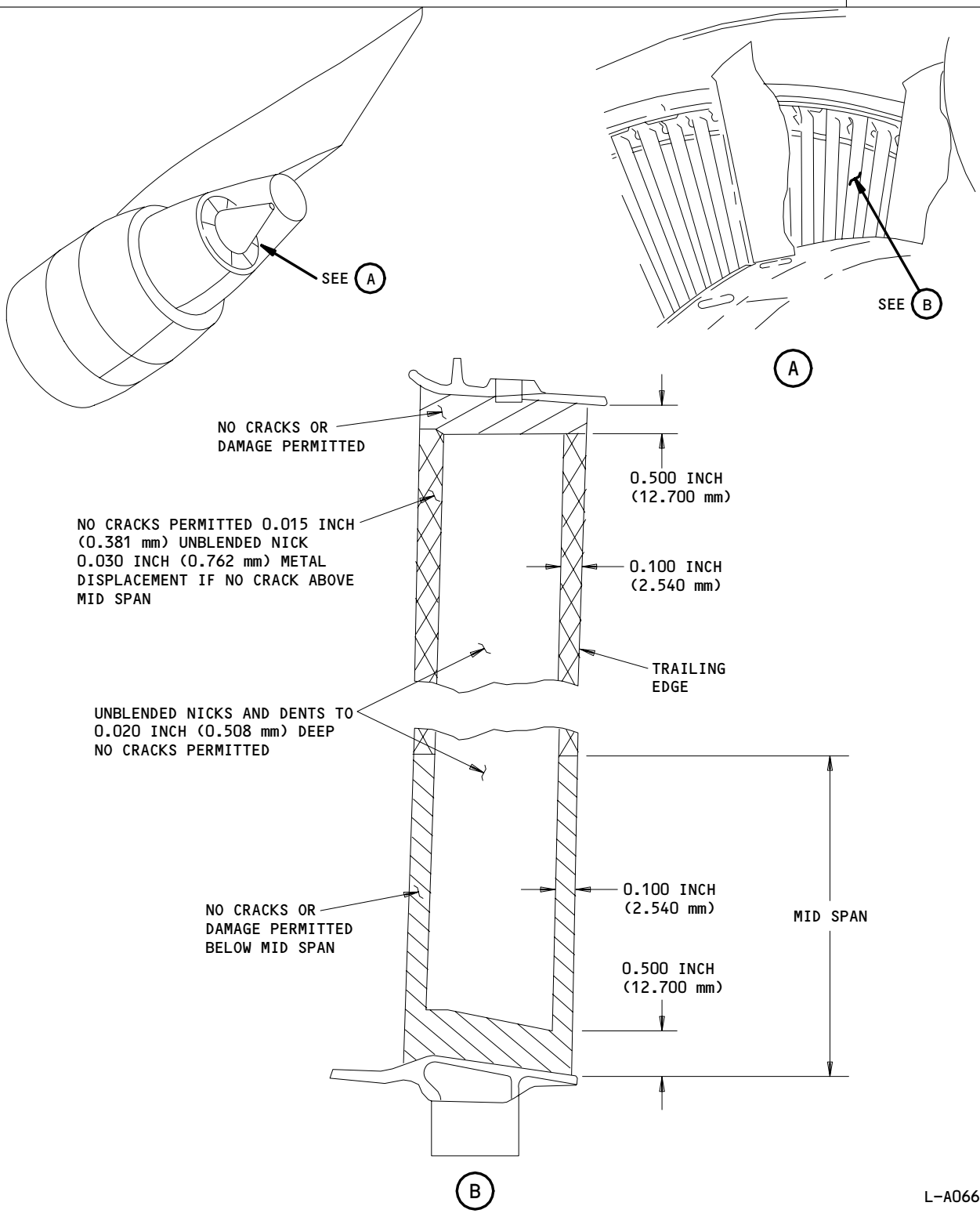
B. Do the 6th Stage Turbine Vane Inspection

(1) Do a visually check for the trailing edges of the turbine vane. Also do a visual check of the shrouds, and airfoils for foreign object damage. Compare this damage with the limits which are given in Fig. 602.

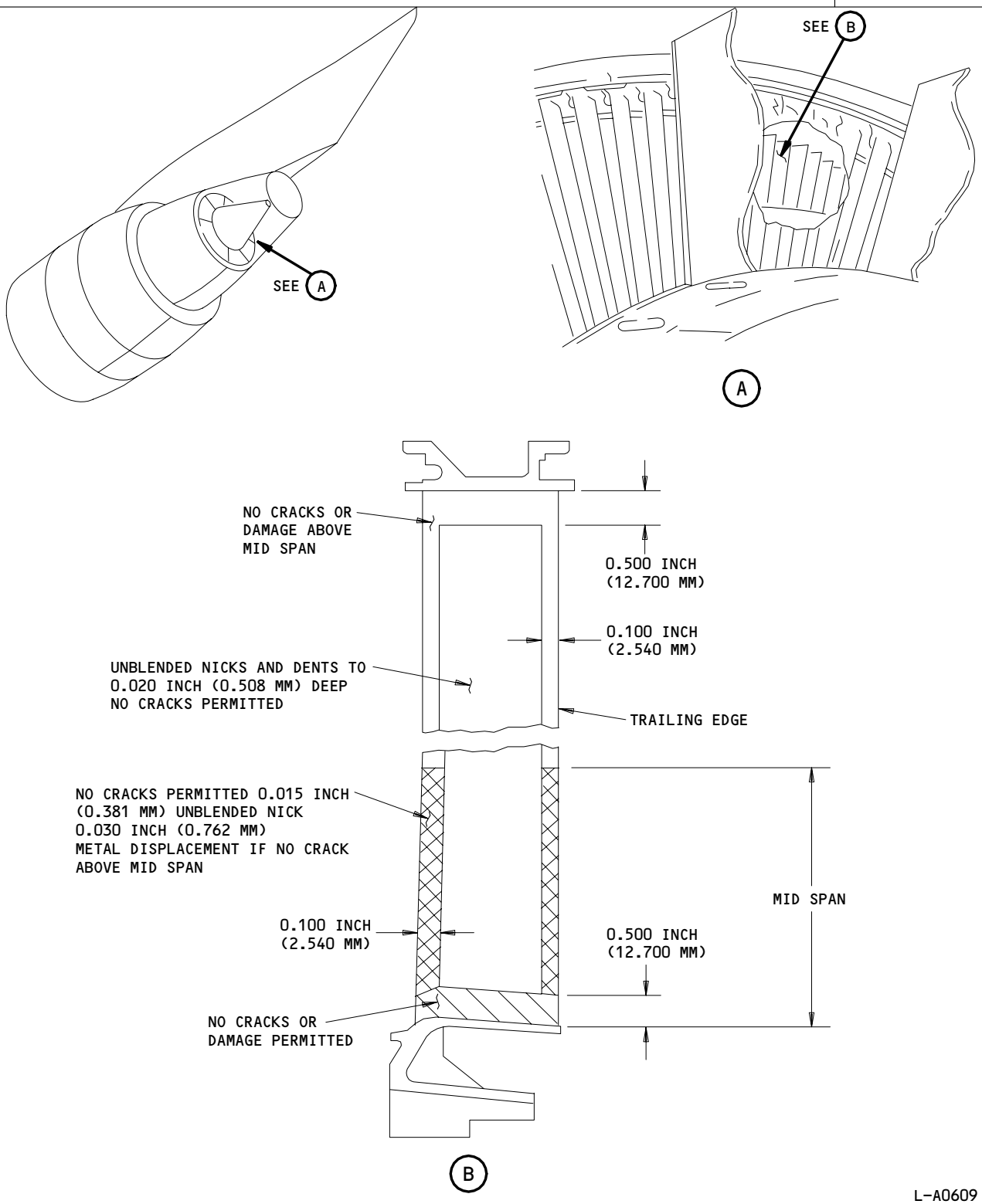
NOTE: Only one airfoil side, shroud, and trailing edge is visible at one time. If damage can be seen on the visible areas of the vane, a complete inspection of vane should be done. This should be done with a borescope, mirror or other tools so that the vane leading edge and remainder of airfoil surfaces can be observed.

MECH	INSP

(2) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel P5.



6th-Stage Turbine Blade Foreign Object Damage Limits
Figure 601



6th-Stage Turbine Vane Foreign Object Damage Limits
Figure 602

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-414-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		00250 CYC	10101	006	FEB 10/92

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	6TH STAGE TURBINE VANES AND BLADES		ALL	4000

ZONES	ACCESS PANELS
421	

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 SIXTH STAGE TURBINE VANES AND BLADES FOR CONDITION. N72-53-01-6A

1. General

A. This procedure contains information for the visual inspection of the 6th-stage turbine blades and vanes. To do the inspection, look forward through the turbine exhaust area.

2. Do the 6th-Stage Turbine Blade Inspection

A. Do the inspection of the 6th Stage Blades

(1) Attach the DO-NOT-OPERATE tags to the ENG START switch which is located on the overhead panel P5.

(2) Do a visual check of the 6th-stage turbine blades for foreign object damage. Compare the damage with the limits which are given in Fig. 601.

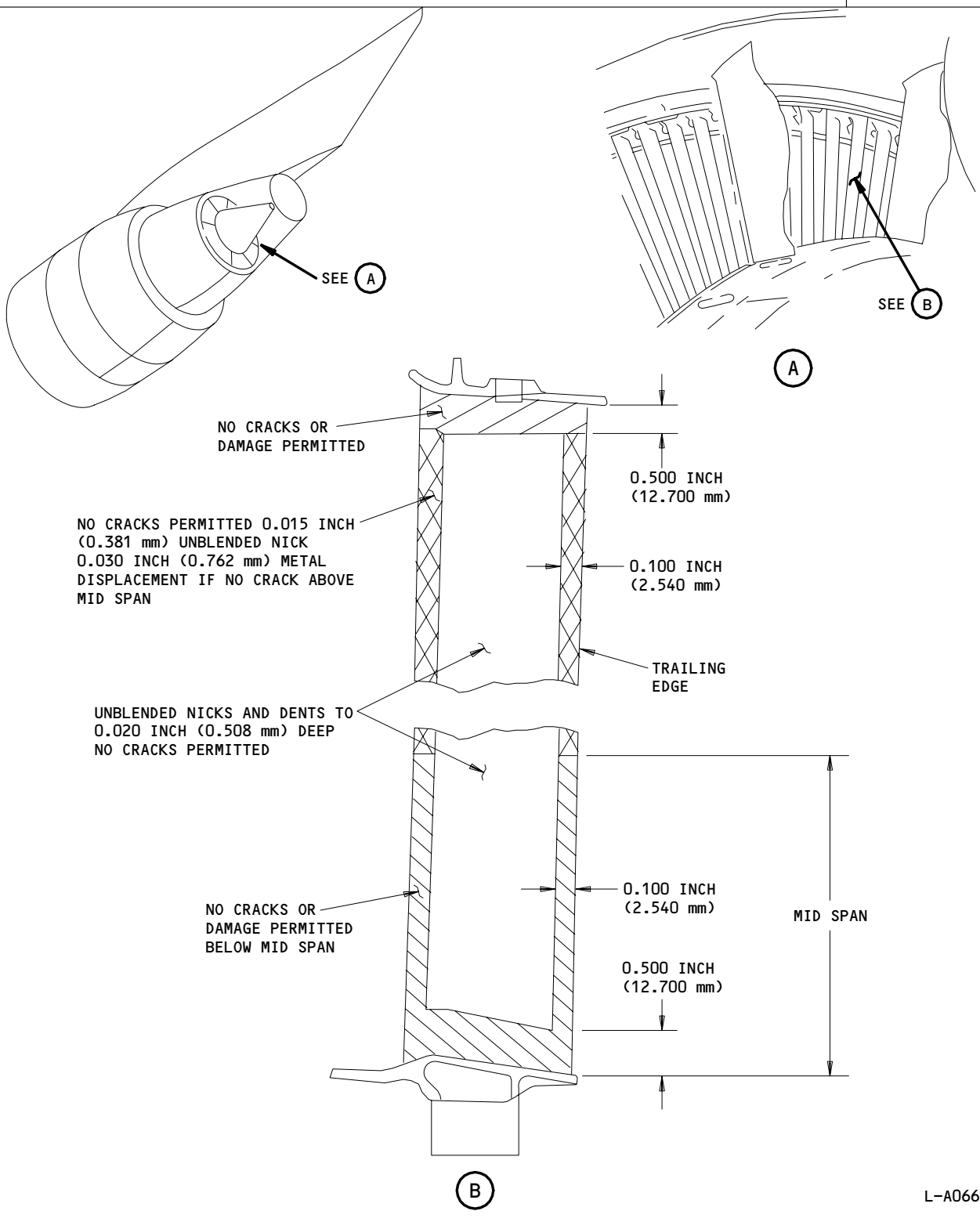
B. Do the 6th Stage Turbine Vane Inspection

(1) Do a visually check for the trailing edges of the turbine vane. Also do a visual check of the shrouds, and airfoils for foreign object damage. Compare this damage with the limits which are given in Fig. 602.

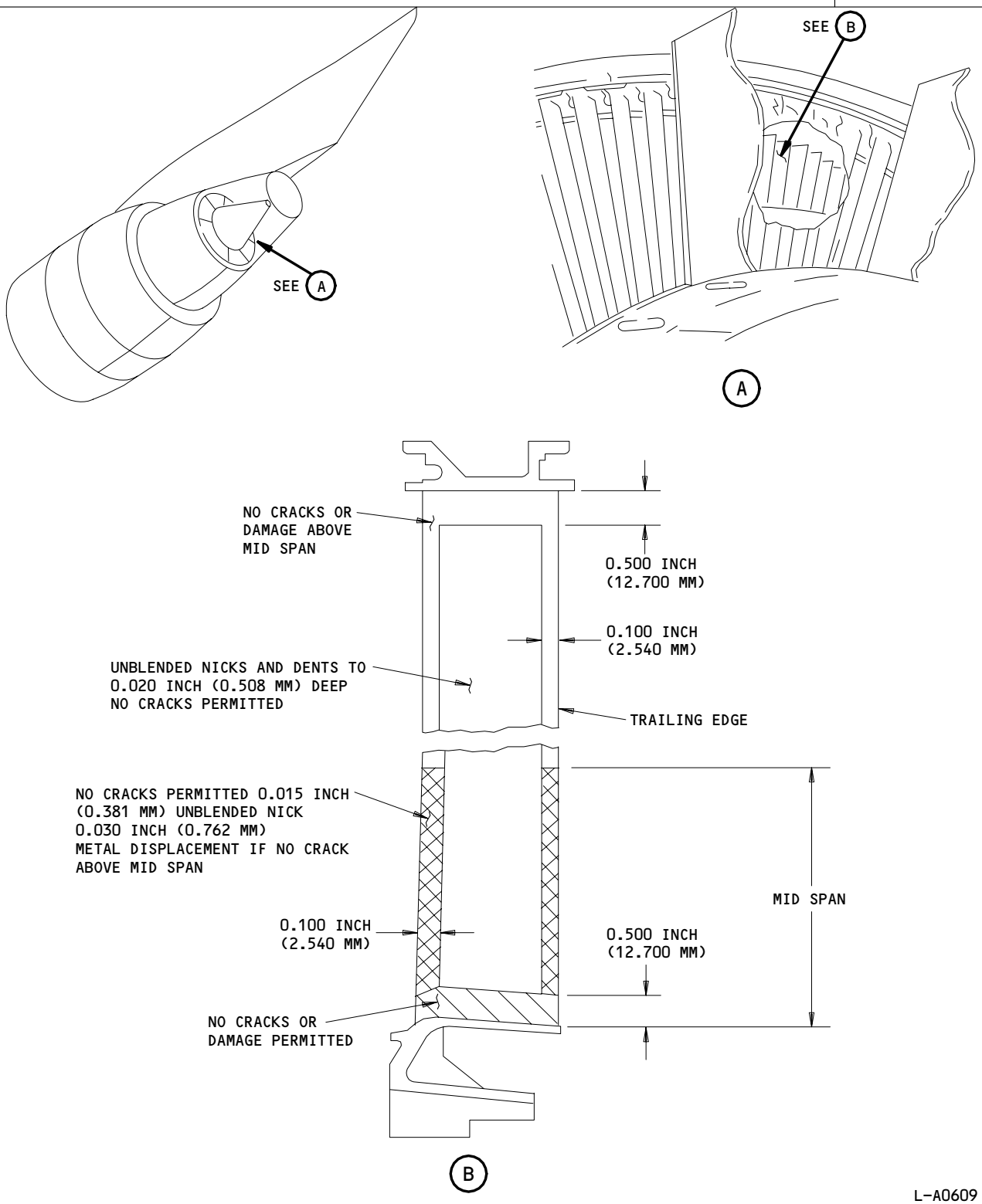
NOTE: Only one airfoil side, shroud, and trailing edge is visible at one time. If damage can be seen on the visible areas of the vane, a complete inspection of vane should be done. This should be done with a borescope, mirror or other tools so that the vane leading edge and remainder of airfoil surfaces can be observed.

MECH	INSP

(2) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel P5.



6th-Stage Turbine Blade Foreign Object Damage Limits
Figure 601



6th-Stage Turbine Vane Foreign Object Damage Limits
Figure 602

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-415
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
SHOPS			LIFE LMT NOTE	99XXX	005	AUG 10/88

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
REPLACE	LP TURBINE ROTATING COMPONENTS		ALL	4000

ZONES	ACCESS PANELS

MECH	INSP	MPD ITEM NUMBER

DISCARD THE LOW PRESSURE TURBINE DISKS, HUB, SHAFT AND ROTATING AIRSEALS. N72-50-00-B

INTERVAL NOTE: AT MANUFACTURER'S LIFE LIMIT (SEE ENGINE MANUAL, CHAPTER 5).

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-418-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1	W-06-145-01	1C	11212	006	MAY 10/89

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 1 TURBINE EXHAUST CASE RAILS		ALL	4000

ZONES	ACCESS PANELS
411	417AL 418AR

MECH	INSP	MPD ITEM NUMBER
		N72-50-00-D

VISUALLY CHECK THE ENGINE 1 TURBINE EXHAUST CASE MOUNT RAILS AND MOUNTING HARDWARE FOR CONDITION AND SECURITY.

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-418-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2	W-06-145-01	1C	11212	006	MAY 10/89

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 2 TURBINE EXHAUST CASE RAILS		ALL	4000

ZONES	ACCESS PANELS
421	427AL 428AR

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 TURBINE EXHAUST CASE MOUNT RAILS AND MOUNTING HARDWARE FOR CONDITION AND SECURITY. N72-50-00-D

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-420-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1	W-06-145-01	1C	11212	006	AUG 22/09

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 1 MAIN GEARBOX HOUSING		ALL	4000

ZONES	ACCESS PANELS
411	415AL 416AR 417AL 418AR

MECH | INSP

MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 MAIN GEARBOX HOUSING FOR CONDITION AND SECURITY. N72-61-01-6A

1. Main Gearbox Inspection/Check

A. Consumable Materials

(1) D00137 Oil - Engine (PWA521B) (AMM 20-30-04)

(2) B00448 Trichloroethane - Commercially Available

B. References

(1) AMM 12-13-01/301, Engine Oil System Servicing

(2) AMM 71-11-04/201, Fan Cowl Panels

(3) AMM 71-11-06/201, Core Cowl Panels

(4) AMM 78-31-00/201, Thrust Reverser System

(5) AMM 79-21-10/401, Magnetic Chip Detectors

C. Access

(1) Location Zones
410 Left Power Plant Nacelle
420 Right Power Plant Nacelle

D. Prepare for the main gearbox inspection.

(1) Open the fan cowl panels (AMM 71-11-04/201).

MECH | INSP

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

(3) Open the core cowl panels (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Open the thrust reversers (AMM 78-31-00/201).

E. Do the main gearbox inspection.

(1) Open the ENG START switch on the P5 overhead panel and attach the DO-NOT-OPERATE tag.

WARNING: ALLOW A MINIMUM OF FIVE MINUTES AFTER ENGINE IS SHUTDOWN TO ALLOW THE OIL TANK PRESSURE TO BLEED OFF BEFORE THE OIL TANK CAP IS OPENED. HOT OIL WHICH FLOWS FROM THE TANK CAN CAUSE INJURY TO YOU.

WARNING: DO NOT KEEP THE LUBRICATING OIL ON YOUR SKIN FOR A LONG TIME. IF YOU DO NOT CLEAN THE OIL OFF, INJURY TO YOU CAN OCCUR.

(2) Do a check of the main gearbox, oil pump, and oil tank for any signs of oil spills.

CAUTION: WHEN THE DRAIN PLUGS ARE REMOVED, HOLD THE BUSHINGS AT THE WRENCHING FLATS TO PREVENT THE BUSHINGS FROM BECOMING LOOSE.

(a) If any signs of oil spills are found around the drain plugs, do the following steps:

MECH | INSP

1) Remove the plugs and discard the packings.

2) Permit the oil to fully drain into an applicable container.

CAUTION: MAKE SURE TO INSTALL PACKINGS ON ALL DRAIN PLUGS TO PREVENT LOSS OF ENGINE OIL DURING ENGINE OPERATION. THIS CAN RESULT IN POSSIBLE ENGINE FAILURE.

3) Lubricate the drain plug threads and install using new packings lubricated with engine oil.

4) Install the lower drain plugs and tighten to 110-120 pound inches (12.2-13.6 newton-meters). Install the upper drain plug and tighten to 150-170 pound inches (16.9-19.2 newton-meters).

5) Fill the engine oil system (AMM 12-13-01/301).

(b) Examine the main gearbox, the oil pump, and the oil tank for oil leaks from the magnetic chip detectors (MCD) (Fig. 602).

NOTE: The shape of the MCD probe and the quantity of packings can be different from what is shown in the Fig. 602.

1) If the leak comes from between the MCD probe and the MCD housing, replace the packing on the probe and, if applicable, the packing on the housing (AMM 79-21-10/401).

2) If the leak comes from between the MCD housing and the port, replace the packing on the housing (AMM 79-21-10/401).

(3) Examine the oil tank cap for leaks. If you find a leak which comes from the cap stem, replace the packing in the cap (AMM 79-11-03/201).

(4) Do a check of the main gearbox, oil pump and oil tank for any cracks. If any cracks are found, replace the cracked parts before the airplane returns to service.

(5) Do a check of the main gearbox and oil pump for evidence of corrosion.

MECH | INSP

CAUTION: CORROSION MAY BE CAUSED BY HYDRAULIC FLUID WHICH HAS SPILLED ON A HOT ALUMINUM GEARBOX AND HAS DECOMPOSED. MAKE ALL SPILLS CLEAN WITH CLOTH SOAKED WITH TRICHLOROETHANE.

(a) A part may continue in service if the guidelines that follow are met:

1) The corrosion of an area must be equal to but no more than 0.050 inch (1.270 mm) in depth

2) The corrosion must not be more than 1.00 sq inch in area

3) The separation between any areas of corrosion must be at least 2.00 inches.

(b) Corrosion that is more than the limits above is not satisfactory and the part may not continue in service.

F. Put the Airplane Back To Its Usual Condition

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

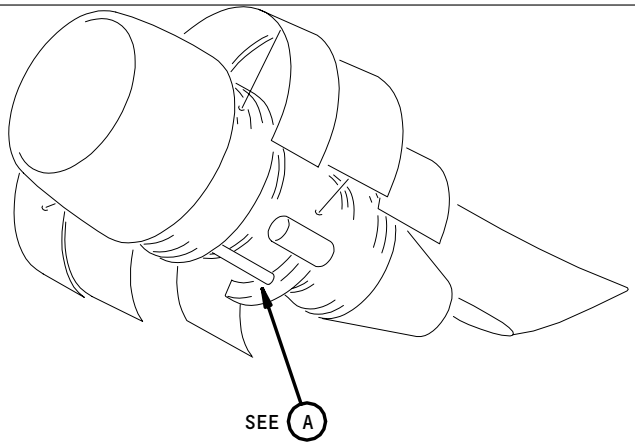
(1) Close the thrust reversers (AMM 78-31-00/201).

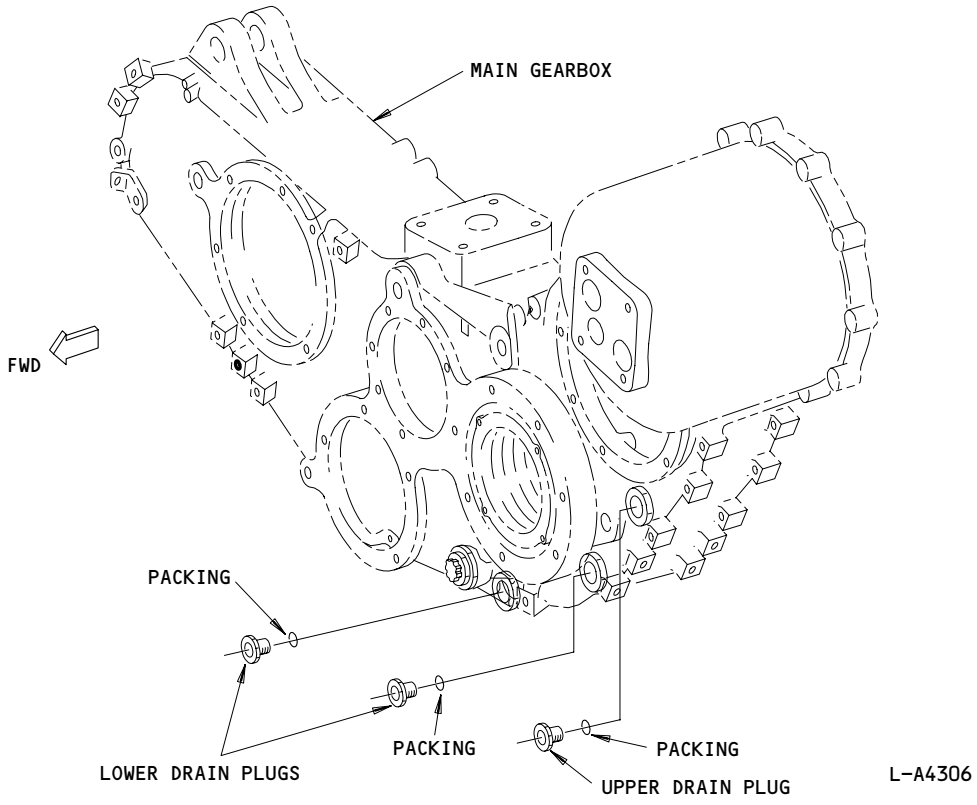
(2) Close the core cowl panels (AMM 71-11-06/201).

(3) Close the fan cowl panels (AMM 71-11-04/201).

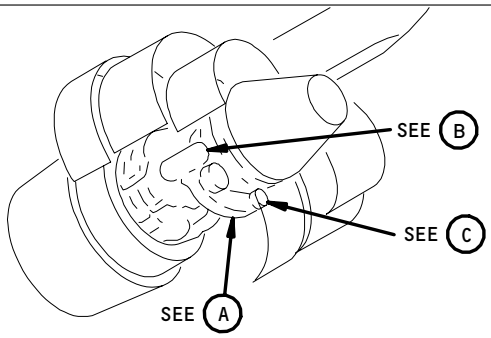
(4) Do the activation procedure for the thrust reversers (AMM 78-31-00/201).

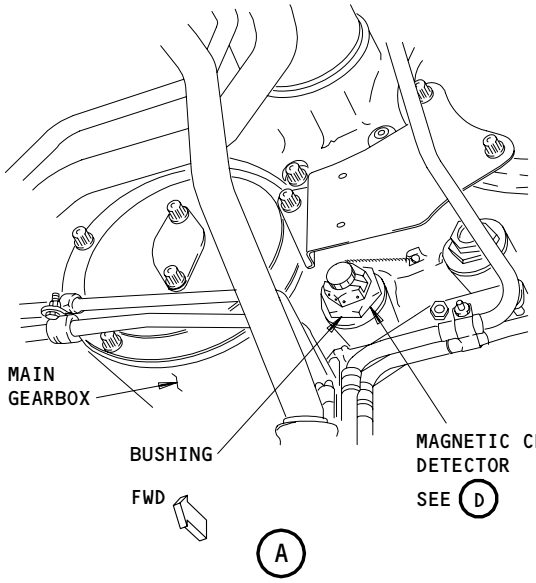
(5) Remove the DO-NOT-OPERATE tag and close the ENG START switch on the P5 overhead panel.

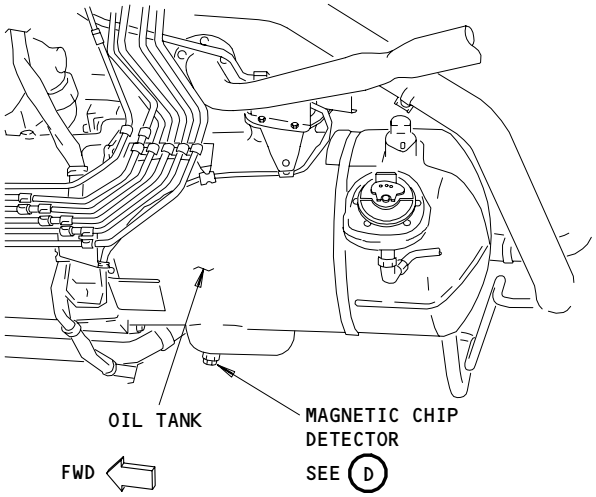


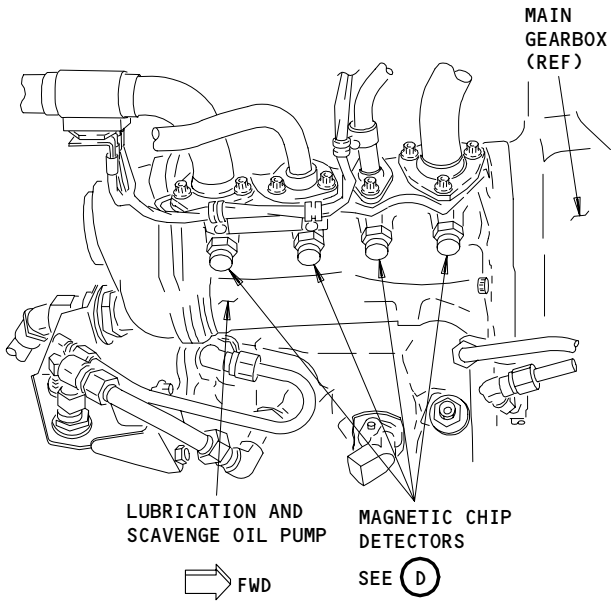


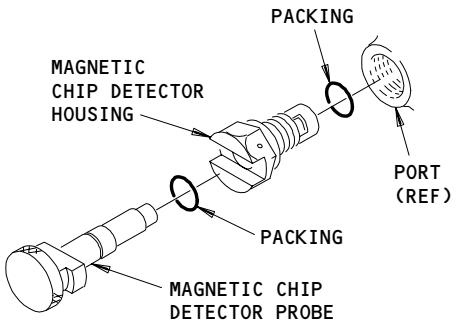
Main Gearbox Drain Plug Locations
Figure 601











Main Gearbox Magnetic Chip Detector Locations
Figure 602

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-420-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2	W-06-145-01	1C	11212	006	AUG 22/09

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 2 MAIN GEARBOX HOUSING		ALL	4000

ZONES	ACCESS PANELS
421	425AL 426AR 427AL 428AR

MECH | INSP

MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 MAIN GEARBOX HOUSING FOR CONDITION AND SECURITY. N72-61-01-6A

1. Main Gearbox Inspection/Check

A. Consumable Materials

(1) D00137 Oil - Engine (PWA521B) (AMM 20-30-04)

(2) B00448 Trichloroethane - Commercially Available

B. References

(1) AMM 12-13-01/301, Engine Oil System Servicing

(2) AMM 71-11-04/201, Fan Cowl Panels

(3) AMM 71-11-06/201, Core Cowl Panels

(4) AMM 78-31-00/201, Thrust Reverser System

(5) AMM 79-21-10/401, Magnetic Chip Detectors

C. Access

(1) Location Zones
410 Left Power Plant Nacelle
420 Right Power Plant Nacelle

D. Prepare for the main gearbox inspection.

(1) Open the fan cowl panels (AMM 71-11-04/201).

MECH | INSP

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

(3) Open the core cowl panels (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Open the thrust reversers (AMM 78-31-00/201).

E. Do the main gearbox inspection.

(1) Open the ENG START switch on the P5 overhead panel and attach the DO-NOT-OPERATE tag.

WARNING: ALLOW A MINIMUM OF FIVE MINUTES AFTER ENGINE IS SHUTDOWN TO ALLOW THE OIL TANK PRESSURE TO BLEED OFF BEFORE THE OIL TANK CAP IS OPENED. HOT OIL WHICH FLOWS FROM THE TANK CAN CAUSE INJURY TO YOU.

WARNING: DO NOT KEEP THE LUBRICATING OIL ON YOUR SKIN FOR A LONG TIME. IF YOU DO NOT CLEAN THE OIL OFF, INJURY TO YOU CAN OCCUR.

(2) Do a check of the main gearbox, oil pump, and oil tank for any signs of oil spills.

CAUTION: WHEN THE DRAIN PLUGS ARE REMOVED, HOLD THE BUSHINGS AT THE WRENCHING FLATS TO PREVENT THE BUSHINGS FROM BECOMING LOOSE.

(a) If any signs of oil spills are found around the drain plugs, do the following steps:

MECH | INSP

1) Remove the plugs and discard the packings.

2) Permit the oil to fully drain into an applicable container.

CAUTION: MAKE SURE TO INSTALL PACKINGS ON ALL DRAIN PLUGS TO PREVENT LOSS OF ENGINE OIL DURING ENGINE OPERATION. THIS CAN RESULT IN POSSIBLE ENGINE FAILURE.

3) Lubricate the drain plug threads and install using new packings lubricated with engine oil.

4) Install the lower drain plugs and tighten to 110-120 pound inches (12.2-13.6 newton-meters). Install the upper drain plug and tighten to 150-170 pound inches (16.9-19.2 newton-meters).

5) Fill the engine oil system (AMM 12-13-01/301).

(b) Examine the main gearbox, the oil pump, and the oil tank for oil leaks from the magnetic chip detectors (MCD) (Fig. 602).

NOTE: The shape of the MCD probe and the quantity of packings can be different from what is shown in the Fig. 602.

1) If the leak comes from between the MCD probe and the MCD housing, replace the packing on the probe and, if applicable, the packing on the housing (AMM 79-21-10/401).

2) If the leak comes from between the MCD housing and the port, replace the packing on the housing (AMM 79-21-10/401).

(3) Examine the oil tank cap for leaks. If you find a leak which comes from the cap stem, replace the packing in the cap (AMM 79-11-03/201).

(4) Do a check of the main gearbox, oil pump and oil tank for any cracks. If any cracks are found, replace the cracked parts before the airplane returns to service.

(5) Do a check of the main gearbox and oil pump for evidence of corrosion.

MECH | INSP

CAUTION: CORROSION MAY BE CAUSED BY HYDRAULIC FLUID WHICH HAS SPILLED ON A HOT ALUMINUM GEARBOX AND HAS DECOMPOSED. MAKE ALL SPILLS CLEAN WITH CLOTH SOAKED WITH TRICHLOROETHANE.

(a) A part may continue in service if the guidelines that follow are met:

1) The corrosion of an area must be equal to but no more than 0.050 inch (1.270 mm) in depth

2) The corrosion must not be more than 1.00 sq inch in area

3) The separation between any areas of corrosion must be at least 2.00 inches.

(b) Corrosion that is more than the limits above is not satisfactory and the part may not continue in service.

F. Put the Airplane Back To Its Usual Condition

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

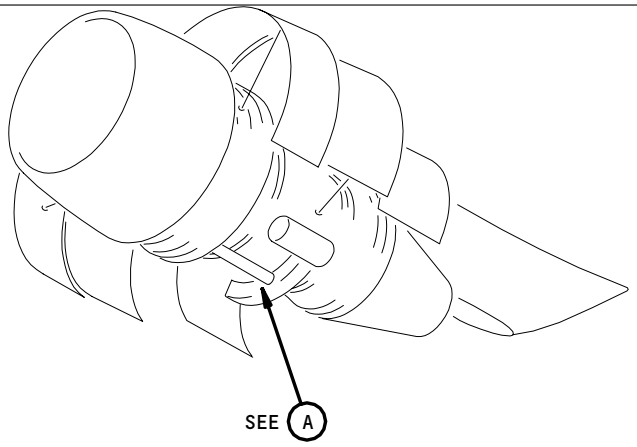
(1) Close the thrust reversers (AMM 78-31-00/201).

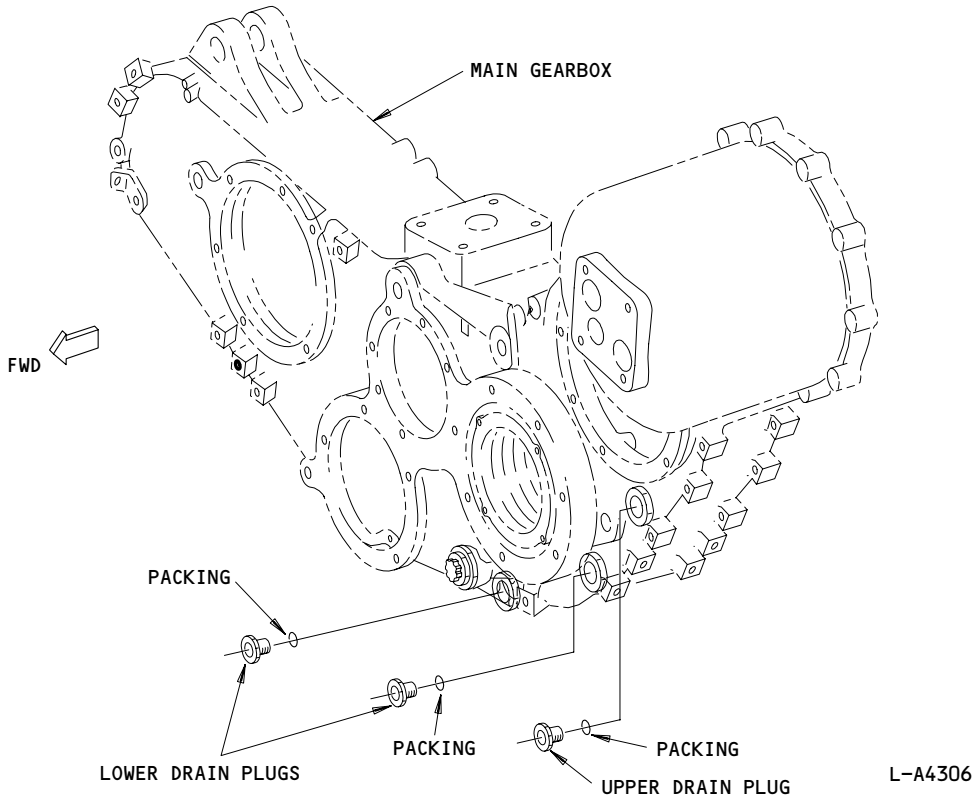
(2) Close the core cowl panels (AMM 71-11-06/201).

(3) Close the fan cowl panels (AMM 71-11-04/201).

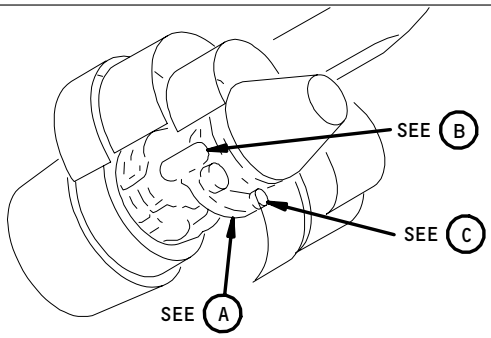
(4) Do the activation procedure for the thrust reversers (AMM 78-31-00/201).

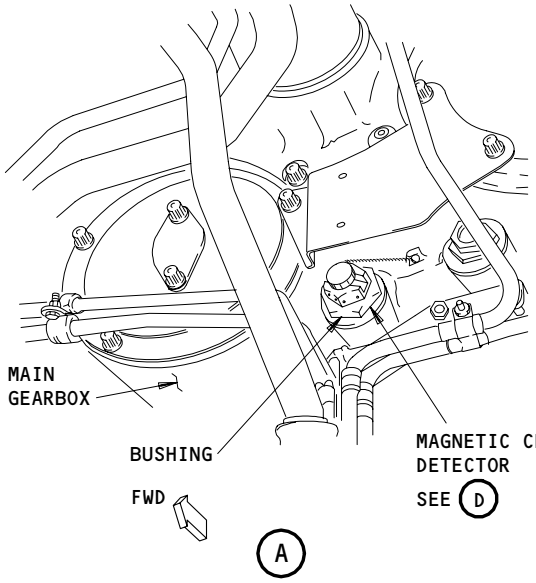
(5) Remove the DO-NOT-OPERATE tag and close the ENG START switch on the P5 overhead panel.

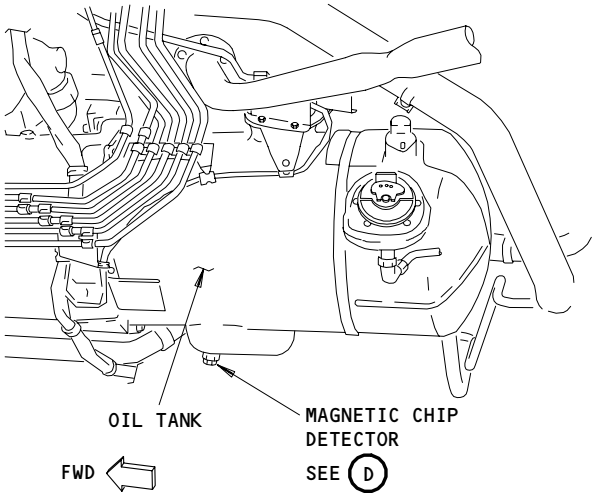


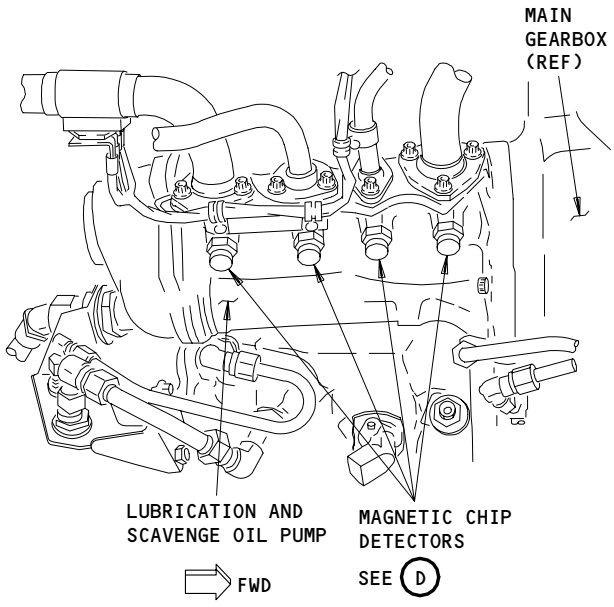


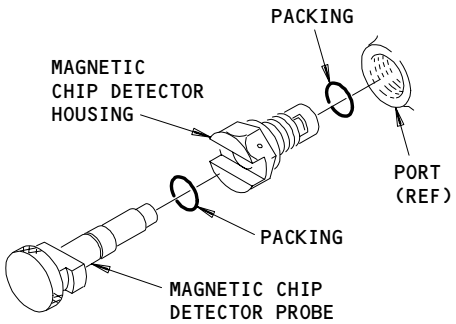
Main Gearbox Drain Plug Locations
Figure 601











Main Gearbox Magnetic Chip Detector Locations
Figure 602

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-422-51-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1	W-06-145-01	1C	11212	007	DEC 22/06

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 1 ANGLE GEARBOX HOUSING		ALL	4000

ZONES	ACCESS PANELS
411	415AL 416AR 417AL 418AR NOTE

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 ANGLE GEARBOX HOUSING FOR CONDITION AND SECURITY. N72-62-01-6A

ACCESS NOTE: FAN EXIT LINER SEGMENT MUST BE REMOVED TO PERFORM THIS CHECK.

A. References

(1) AMM 71-11-04/201, Fan Cowl Panels

(2) AMM 71-11-06/201, Core Cowl Panels

(3) AMM 72-34-03/401, Fan Exit Liner Segment

(4) AMM 72-62-01/401, Angle Gearbox

(5) AMM 78-31-00/201, Thrust Reverser System

B. Access

(1) Location Zones
411 Left Engine
421 Right Engine

C. Do the Inspection of the Angle Gearbox

(1) Open the fan cowl panels (AMM 71-11-04/201).

(2) Open the core cowl panels (AMM 71-11-06/201).

WARNING: DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

(4) Remove the No. 4 fan exit lining segment (AMM 72-34-03/401).

(5) Examine the angle gearbox for cracks, oil leaks and corrosion to make sure that the damage is less than the limits given in the damage limit table.

DAMAGE LIMIT TABLE

DAMAGE TYPE	AMOUNT OF DAMAGE PERMITTED inches (mm)
Cracks	No Damage Permitted
Oil Leaks	No Damage Permitted
Corrosion	Max. Depth - 0.05 (1.270) Max. Area - 1.00 sq in. (645 sq mm) Min. Separation - 2.00 (50.80)

(6) Visually inspect for pin migration beyond the support bracket on both sides of the angle gearbox (Fig./601).

(a) Pin migration that is greater than 0.125 inch (3.175 mm) is to be inspected every 25 cycles.

(b) Maximum pin migration is 0.250 inch (6.350 mm). Remove angle gearbox from service if migration exceeds maximum.

(7) Install the No. 4 fan exit lining segment (AMM 72-34-03/401).

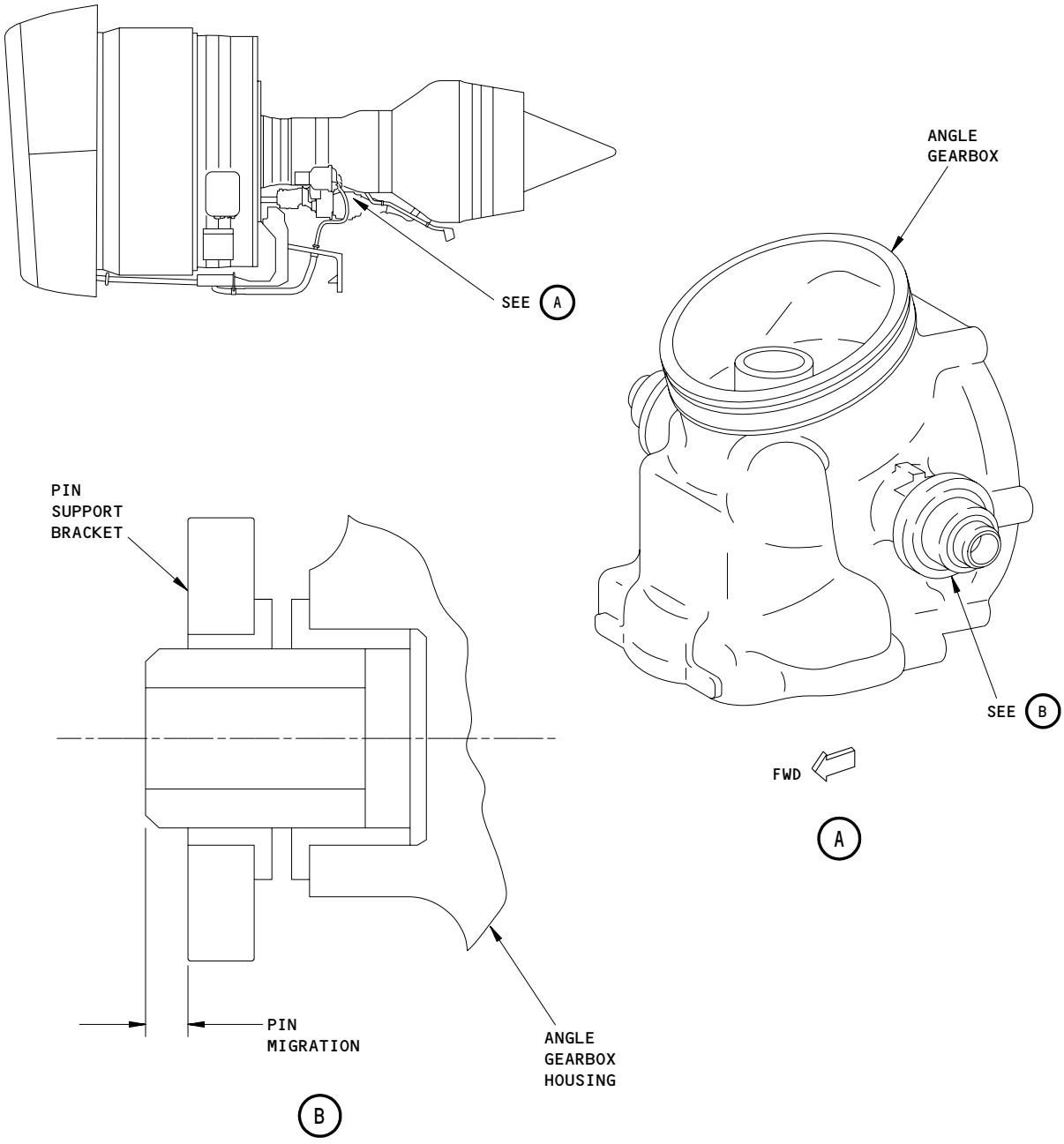
WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT COULD OCCUR.

MECH	INSP

(8) Close the thrust reversers (AMM 78-31-00/201).

(9) Close the core cowl panels (AMM 71-11-06/201).

(10) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).



Angle Gearbox
Figure 601

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-422-51-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2	W-06-145-01	1C	11212	007	DEC 22/06

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 2 ANGLE GEARBOX HOUSING		ALL	4000

ZONES	ACCESS PANELS
421	425AL 426AR 427AL 428AR NOTE

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 ANGLE GEARBOX HOUSING FOR CONDITION AND SECURITY. N72-62-01-6A

ACCESS NOTE: FAN EXIT LINER SEGMENT MUST BE REMOVED TO PERFORM THIS CHECK.

A. References

(1) AMM 71-11-04/201, Fan Cowl Panels

(2) AMM 71-11-06/201, Core Cowl Panels

(3) AMM 72-34-03/401, Fan Exit Liner Segment

(4) AMM 72-62-01/401, Angle Gearbox

(5) AMM 78-31-00/201, Thrust Reverser System

B. Access

(1) Location Zones
411 Left Engine
421 Right Engine

C. Do the Inspection of the Angle Gearbox

(1) Open the fan cowl panels (AMM 71-11-04/201).

(2) Open the core cowl panels (AMM 71-11-06/201).

WARNING: DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do the deactivation procedure for the thrust reverser for ground maintenance (AMM 78-31-00/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

(4) Remove the No. 4 fan exit lining segment (AMM 72-34-03/401).

(5) Examine the angle gearbox for cracks, oil leaks and corrosion to make sure that the damage is less than the limits given in the damage limit table.

DAMAGE LIMIT TABLE

DAMAGE TYPE	AMOUNT OF DAMAGE PERMITTED inches (mm)
Cracks	No Damage Permitted
Oil Leaks	No Damage Permitted
Corrosion	Max. Depth - 0.05 (1.270) Max. Area - 1.00 sq in. (645 sq mm) Min. Separation - 2.00 (50.80)

(6) Visually inspect for pin migration beyond the support bracket on both sides of the angle gearbox (Fig./601).

(a) Pin migration that is greater than 0.125 inch (3.175 mm) is to be inspected every 25 cycles.

(b) Maximum pin migration is 0.250 inch (6.350 mm). Remove angle gearbox from service if migration exceeds maximum.

(7) Install the No. 4 fan exit lining segment (AMM 72-34-03/401).

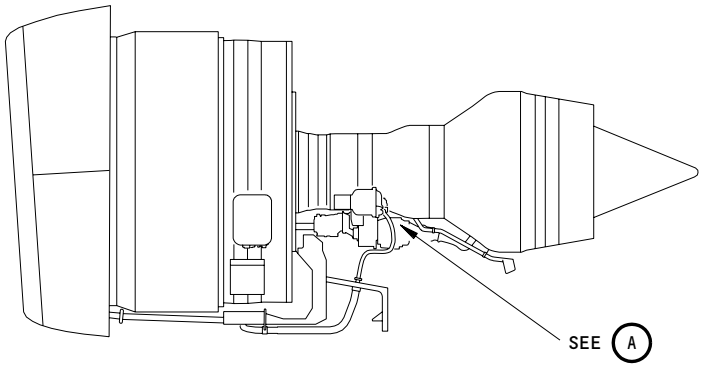
WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSER. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT COULD OCCUR.

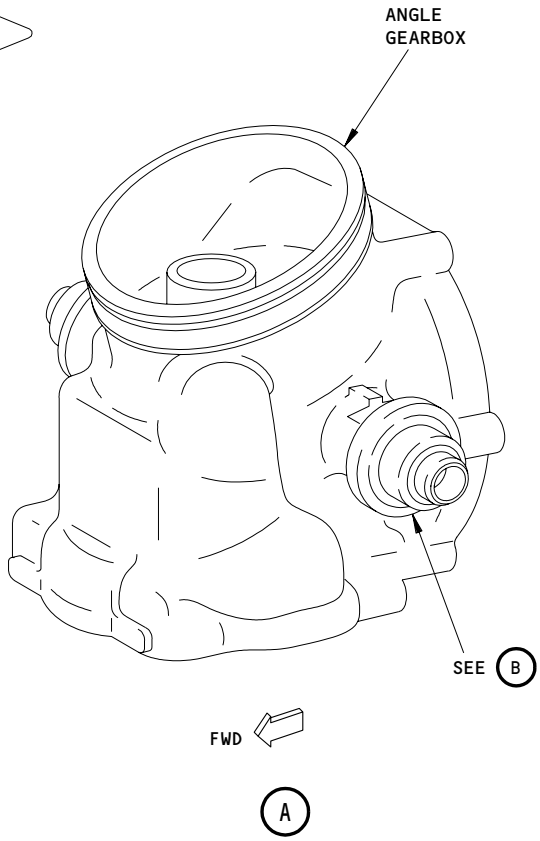
MECH	INSP

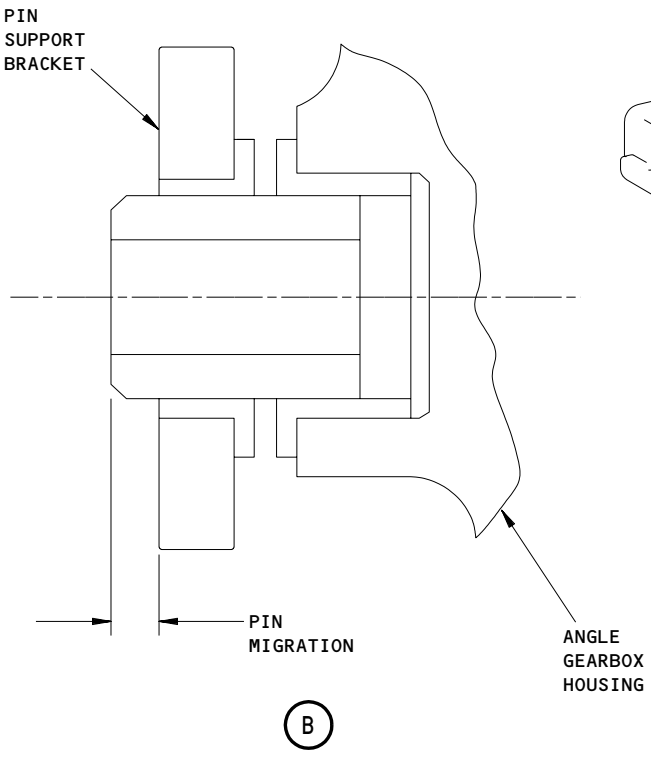
(8) Close the thrust reversers (AMM 78-31-00/201).

(9) Close the core cowl panels (AMM 71-11-06/201).

(10) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).







Angle Gearbox
Figure 601

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-424
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
SHOPS			LIFE LMT NOTE	99XXX	006	AUG 22/99

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
REPLACE	TURBINE SHAFT COUPLING		ALL	4000

ZONES	ACCESS PANELS
411 421	

MECH	INSP	MPD ITEM NUMBER

DISCARD THE TURBINE SHAFT COUPLING. N72-00-00-C
INTERVAL NOTE: AT MANUFACTURER'S LIFE LIMIT (SEE ENGINE MANUAL, CHAPTER 5).

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-425-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		01000 HRS	10202	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 1 FRONT FAN CASE		ALL	4000

ZONES	ACCESS PANELS
411	413AL 414AR

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 FRONT FAN CASE FOR CONDITION. N72-33-01-A

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-425-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		01000 HRS	10202	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 2 FRONT FAN CASE		ALL	4000

ZONES	ACCESS PANELS
421	423AL 424AR

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 FRONT FAN CASE FOR CONDITION. N72-33-01-A

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-426-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		01000 HRS	10202	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 1 FAN EXIT FAIRING		ALL	4000

ZONES	ACCESS PANELS
411	415AL 416AR

MECH	INSP	MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 1 FAN EXIT FAIRING FOR CONDITION. N72-31-03-6A

FAN EXIT FAIRING - INSPECTION/CHECK

1. General

   A. This procedure gives a visual inspection of the fan exit fairing for nick, gouges, cracks, and delamination.

2. Fan Exit Fairing - Inspection/Check

   A. References

      (1) AMM 72-31-03/401, Fan Exit Fairing

   B. Access

      (1) Location Zones
          410 Left Power Plant Nacelle
          420 Right Power Plant Nacelle

   C. Do an Inspection of the Fan Exit Fairing (Fig. 601)

      (1) Attach a DO-NOT-CLOSE tag to the ENG START switch on the pilot's overhead panel, P5.

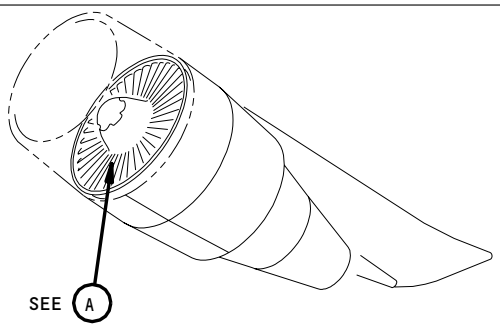
      (2) Visually examine the fan exit fairing:

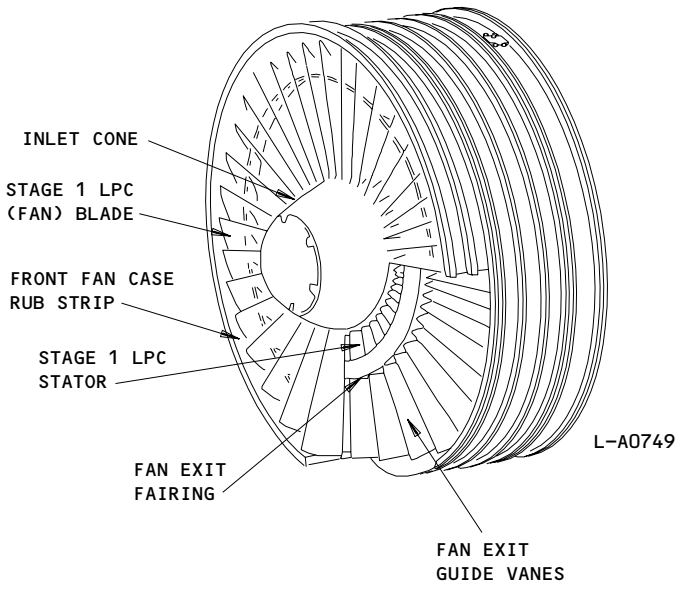
MECH | INSP

AREA	EXAMINE FOR:	CONTINUE-IN-SERVICE LIMITS	CORRECTIONS IF DAMAGE IS WORSE THAN LIMITS
A	Nicks, Gouges, and Cracks and Cracks	Not more than 0.050 inch (1.270 mm) in depth, less than 0.50 inch (12.700 mm) in width, at least 2.00 inches (50.80 mm) apart from other nicks, gouges, or cracks, and no more than three in a 45 degree arc.	Replace the Fan Exit Fairing (AMM 72-31-03/401).
B	Nicks, and Gouges	Not more than 1.000 inch (25.400 mm) in diameter, not more than 0.050 inch (1.270 mm) in depth, at least 2.00 inches (50.800 mm) apart from other nicks, or gouges, and no more than three in a 45 degree arc.	Replace the Fan Exit Fairing (AMM 72-31-03/401).
A and B	Delamination of the composite material Examine after each 50 hours of operation for increased dimensions.	Not more than 1.000 inch (25.400 mm) by 1.500 inch (38.100 mm) in area, not more than 0.050 inch (1.270 mm) in depth, at least 2.00 inches apart from other delaminations, nicks, or gouges, and no more than three in a 45 degree arc.	Replace the Fan Exit Fairing before the 26th hour of operation (AMM 72-31-03/401).
		Not more than 2.50 inches (63.50 mm) by 2.00 inches (50.80 mm) in area.	Replace the Fan Exit Fairing immediately (AMM 72-31-03/401).

AREA	EXAMINE FOR:	CONTINUE-IN-SERVICE LIMITS	CORRECTIONS IF DAMAGE IS WORSE THAN LIMITS
A and B	Delamination, erosion, or loose areas of the Black Polyurethane Surface Layer	100 percent of the surface area NOTE: Fan exit fairing assemblies with a steel leading edge cap will not have the black polyurethane surface layer. Make sure this steel leading edge cap is correctly attached.	

(3) Remove the DO-NOT-OPERATE tag from the ENG START switch on the pilot's overhead panel, P5.





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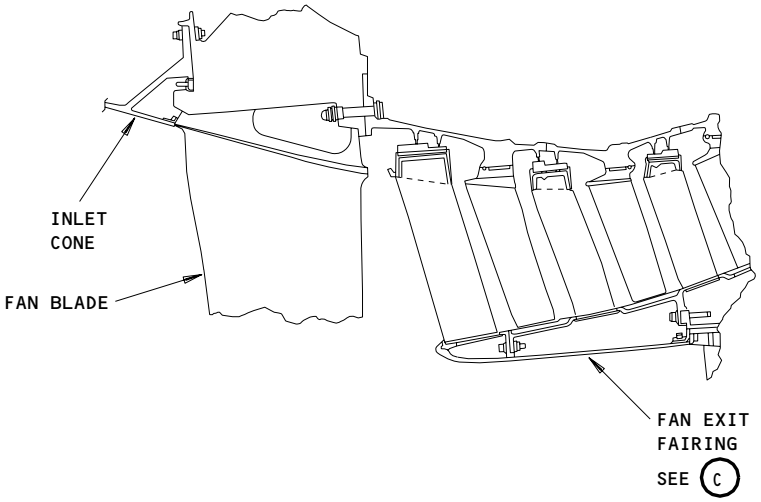

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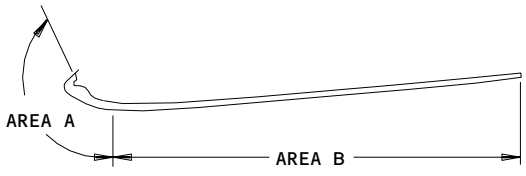


C

Fan Exit Fairing Inspection
Figure 601

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-426-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		01000 HRS	10202	005	DEC 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 2 FAN EXIT FAIRING		ALL	4000

ZONES	ACCESS PANELS
421	425AL 426AR

MECH | INSP

MPD ITEM NUMBER

VISUALLY CHECK THE ENGINE 2 FAN EXIT FAIRING FOR CONDITION. N72-31-03-6A

FAN EXIT FAIRING - INSPECTION/CHECK

1. General

A. This procedure gives a visual inspection of the fan exit fairing for nick, gouges, cracks, and delamination.

2. Fan Exit Fairing - Inspection/Check

A. References

(1) AMM 72-31-03/401, Fan Exit Fairing

B. Access

(1) Location Zones
410 Left Power Plant Nacelle
420 Right Power Plant Nacelle

C. Do an Inspection of the Fan Exit Fairing (Fig. 601)

(1) Attach a DO-NOT-CLOSE tag to the ENG START switch on the pilot's overhead panel, P5.

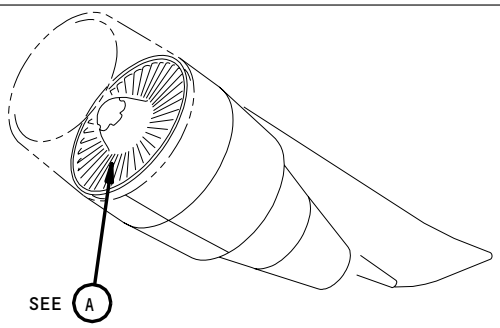
(2) Visually examine the fan exit fairing:

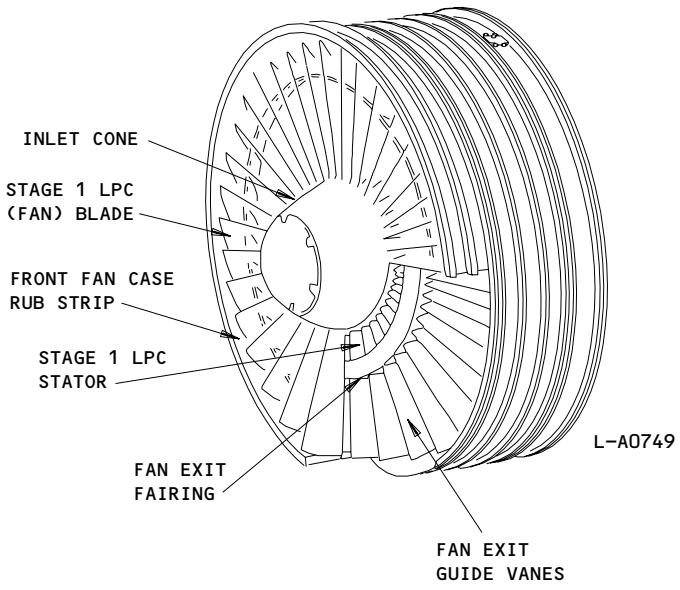
MECH | INSP

AREA	EXAMINE FOR:	CONTINUE-IN-SERVICE LIMITS	CORRECTIONS IF DAMAGE IS WORSE THAN LIMITS
A	Nicks, Gouges, and Cracks and Cracks	Not more than 0.050 inch (1.270 mm) in depth, less than 0.50 inch (12.700 mm) in width, at least 2.00 inches (50.80 mm) apart from other nicks, gouges, or cracks, and no more than three in a 45 degree arc.	Replace the Fan Exit Fairing (AMM 72-31-03/401).
B	Nicks, and Gouges	Not more than 1.000 inch (25.400 mm) in diameter, not more than 0.050 inch (1.270 mm) in depth, at least 2.00 inches (50.800 mm) apart from other nicks, or gouges, and no more than three in a 45 degree arc.	Replace the Fan Exit Fairing (AMM 72-31-03/401).
A and B	Delamination of the composite material Examine after each 50 hours of operation for increased dimensions.	Not more than 1.000 inch (25.400 mm) by 1.500 inch (38.100 mm) in area, not more than 0.050 inch (1.270 mm) in depth, at least 2.00 inches apart from other delaminations, nicks, or gouges, and no more than three in a 45 degree arc.	Replace the Fan Exit Fairing before the 26th hour of operation (AMM 72-31-03/401).
		Not more than 2.50 inches (63.50 mm) by 2.00 inches (50.80 mm) in area.	Replace the Fan Exit Fairing immediately (AMM 72-31-03/401).

AREA	EXAMINE FOR:	CONTINUE-IN-SERVICE LIMITS	CORRECTIONS IF DAMAGE IS WORSE THAN LIMITS
A and B	Delamination, erosion, or loose areas of the Black Polyurethane Surface Layer	100 percent of the surface area NOTE: Fan exit fairing assemblies with a steel leading edge cap will not have the black polyurethane surface layer. Make sure this steel leading edge cap is correctly attached.	

(3) Remove the DO-NOT-OPERATE tag from the ENG START switch on the pilot's overhead panel, P5.





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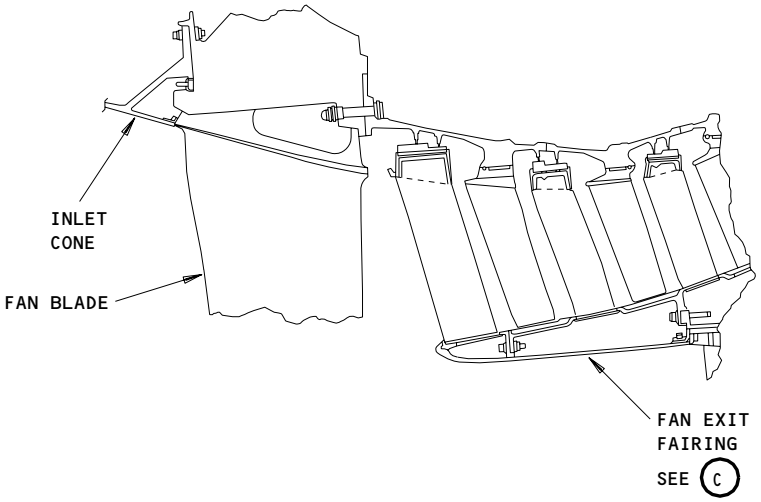

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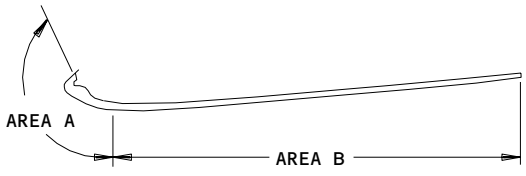


C

Fan Exit Fairing Inspection
Figure 601

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-427-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1	W-06-145-01	1C	11212	006	MAY 10/89

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 1 FRONT MOUNT THRUST BRACKETS		ALL	4000

ZONES	ACCESS PANELS
411	415AL 416AR

MECH	INSP	MPD ITEM NUMBER
		N72-30-00-D

VISUALLY CHECK THE VISIBLE PORTIONS OF THE ENGINE 1 FRONT MOUNT THRUST BRACKETS ON THE INTERMEDIATE CASE FOR CONDITION.

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-427-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2	W-06-145-01	1C	11212	006	MAY 10/89

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 2 FRONT MOUNT THRUST BRACKETS		ALL	4000

ZONES	ACCESS PANELS
421	425AL 426AR

MECH	INSP	MPD ITEM NUMBER
		N72-30-00-D

VISUALLY CHECK THE VISIBLE PORTIONS OF THE ENGINE 2 FRONT MOUNT THRUST BRACKETS ON THE INTERMEDIATE CASE FOR CONDITION.

EFFECTIVITY

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-433-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINES	W-72-401-01-1	00250 HRS	003SC	016	DEC 22/05

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
LUBRICATE	ENG 1 FAN BLADE PART-SPAN SHROUD		ALL	NOTE

ZONES	ACCESS PANELS
411	

MECH | INSP

MPD ITEM NUMBER

LUBRICATE THE ENGINE 1 FAN BLADE PART-SPAN SHROUD CONTACT SURFACES. N72-31-02-6B

ENGINE NOTE: SB PW4ENG 72-536 (PRATT AND WHITNEY). TASK IS APPLICABLE TO ALL FAN ROTORS ON PW4000 ENGINES CONSISTING OF EITHER ALL NON-HONED SHROUD FAN BLADES (PRE-SERVICE BULLETIN 72-536) OR A MIX OF NON-HONED AND HONED SHROUD FAN BLADES (PRE- AND POST- SERVICE BULLETIN 72-536).

A. Equipment

(1) Protective mat - Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).

B. Consumable Materials

(1) D00059 Lubricant - PWA 587 (P06-005)

C. Access

(1) Location Zones
411 Left Engine
422 Right Engine

D. Procedure

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

MECH | INSP

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: USE GLOVES ON YOUR HANDS WHEN YOU HANDLE THE BLADES. THE BLADES ARE SHARP AND CAN CAUSE INJURY TO YOUR HANDS.

(3) Loosen all of the 1st-stage fan blades, if necessary, to make sure they are free to move at the shroud face at the 12 o'clock location.

(4) Examine the fan blades for shrouds that are broken, fractured, have cracks, or are not there.

(5) Examine Area F (shroud edges) for damage (Fig. 603).

WARNING: DO NOT PERMIT THE LUBRICANT TO TOUCH YOUR SKIN. IF IT DOES, WASH YOUR SKIN IMMEDIATELY WITH SOAP AND WATER. THE LUBRICANT CAN CAUSE INJURY TO YOUR SKIN

(6) If there is not sufficient lubricant on the hardface surface of the shroud, do the steps that follow.

(a) With a brush, apply a layer of lubricant to area B, the hardface surface of the shroud.

NOTE: The liquid-paste Molykote type G-N lubricant is easier to apply, and lubricates a longer time than the spray type Molykote.

(b) Remove the unwanted lubricant from the outer surfaces of the shroud and the blade airfoil.

(7) Turn the rotor to put the adjacent two blades at the 12 o'clock position.

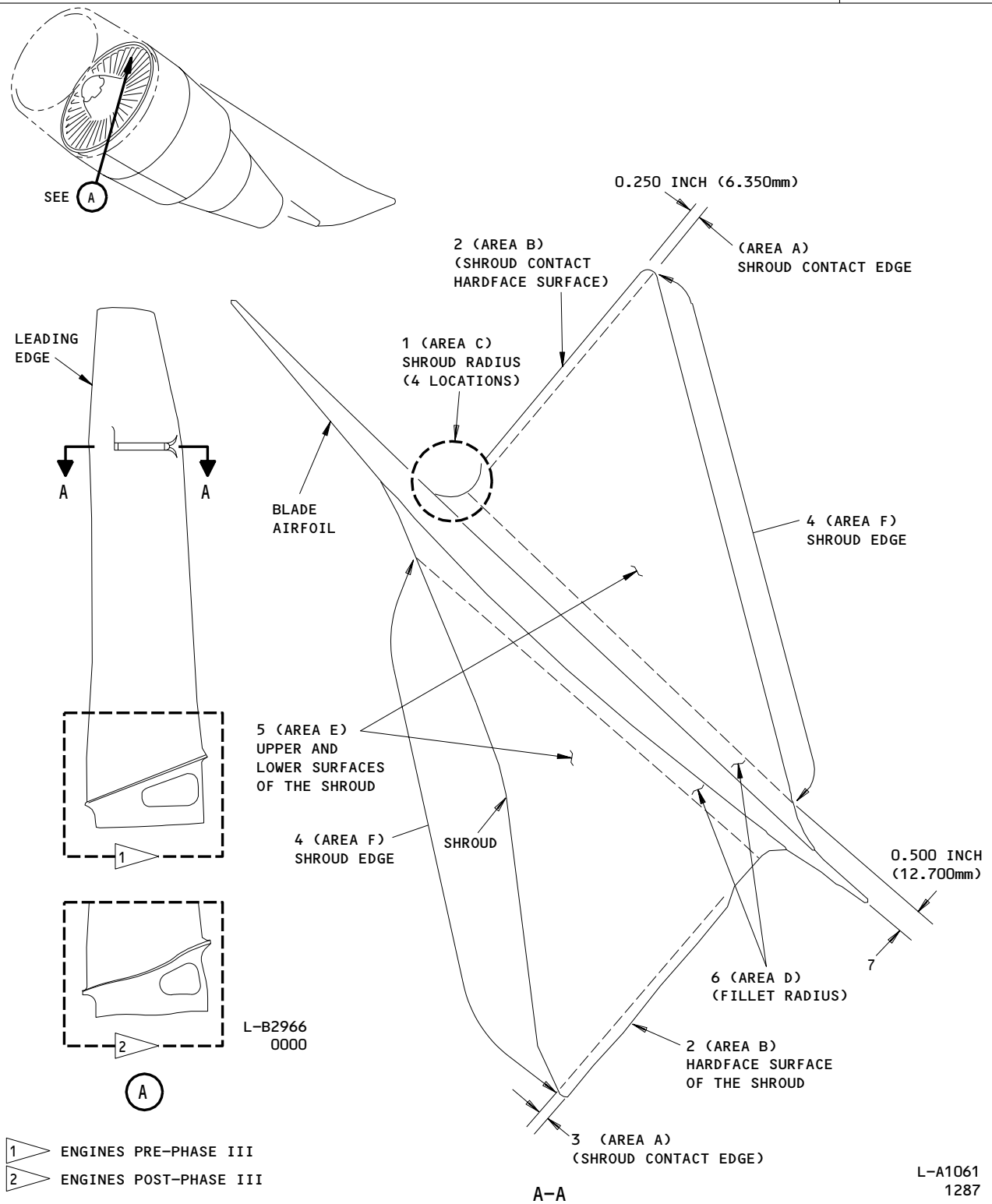
(8) Do this inspection procedure again until you examine all the fan blades.

(9) If you are done with the fan blade inspections, do the steps that follow:

(a) Remove the protective mat from the inlet cowl.

MECH	INSP

(b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.



A-A

Names of the Fan Blade Shroud Areas
Figure 603

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-433-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2	W-72-401-01-2	00250 HRS	003SC	016	DEC 22/05

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
LUBRICATE	ENG 2 FAN BLADE PART-SPAN SHROUD		ALL	NOTE

ZONES	ACCESS PANELS
421	

MECH	INSP	MPD ITEM NUMBER
		N72-31-02-6B

LUBRICATE THE ENGINE 2 FAN BLADE PART-SPAN SHROUD CONTACT SURFACES.

ENGINE NOTE: SB PW4ENG 72-536 (PRATT AND WHITNEY). TASK IS APPLICABLE TO ALL FAN ROTORS ON PW4000 ENGINES CONSISTING OF EITHER ALL NON-HONED SHROUD FAN BLADES (PRE-SERVICE BULLETIN 72-536) OR A MIX OF NON-HONED AND HONED SHROUD FAN BLADES (PRE- AND POST- SERVICE BULLETIN 72-536).

A. Equipment

(1) Protective mat - Rubber Manufacturer's Association, Grade SC43, neoprene sponge, 1 inch thick, approximately 5x6 feet with warning streamers attached (3 required).

B. Consumable Materials

(1) D00059 Lubricant - PWA 587 (P06-005)

C. Access

(1) Location Zones
411 Left Engine
422 Right Engine

D. Procedure

(1) Attach the DO-NOT-OPERATE tag to the ENG START switch which is found on the overhead P5.

CAUTION: MAKE SURE YOU USE A PROTECTIVE MAT. IF YOU DO NOT, DAMAGE MAY RESULT TO THE INNER SURFACE OF THE INLET COWL.

MECH | INSP

(2) Put the protective mat on the inner surface of the inlet cowl.

WARNING: USE GLOVES ON YOUR HANDS WHEN YOU HANDLE THE BLADES. THE BLADES ARE SHARP AND CAN CAUSE INJURY TO YOUR HANDS.

(3) Loosen all of the 1st-stage fan blades, if necessary, to make sure they are free to move at the shroud face at the 12 o'clock location.

(4) Examine the fan blades for shrouds that are broken, fractured, have cracks, or are not there.

(5) Examine Area F (shroud edges) for damage (Fig. 603).

WARNING: DO NOT PERMIT THE LUBRICANT TO TOUCH YOUR SKIN. IF IT DOES, WASH YOUR SKIN IMMEDIATELY WITH SOAP AND WATER. THE LUBRICANT CAN CAUSE INJURY TO YOUR SKIN

(6) If there is not sufficient lubricant on the hardface surface of the shroud, do the steps that follow.

(a) With a brush, apply a layer of lubricant to area B, the hardface surface of the shroud.

NOTE: The liquid-paste Molykote type G-N lubricant is easier to apply, and lubricates a longer time than the spray type Molykote.

(b) Remove the unwanted lubricant from the outer surfaces of the shroud and the blade airfoil.

(7) Turn the rotor to put the adjacent two blades at the 12 o'clock position.

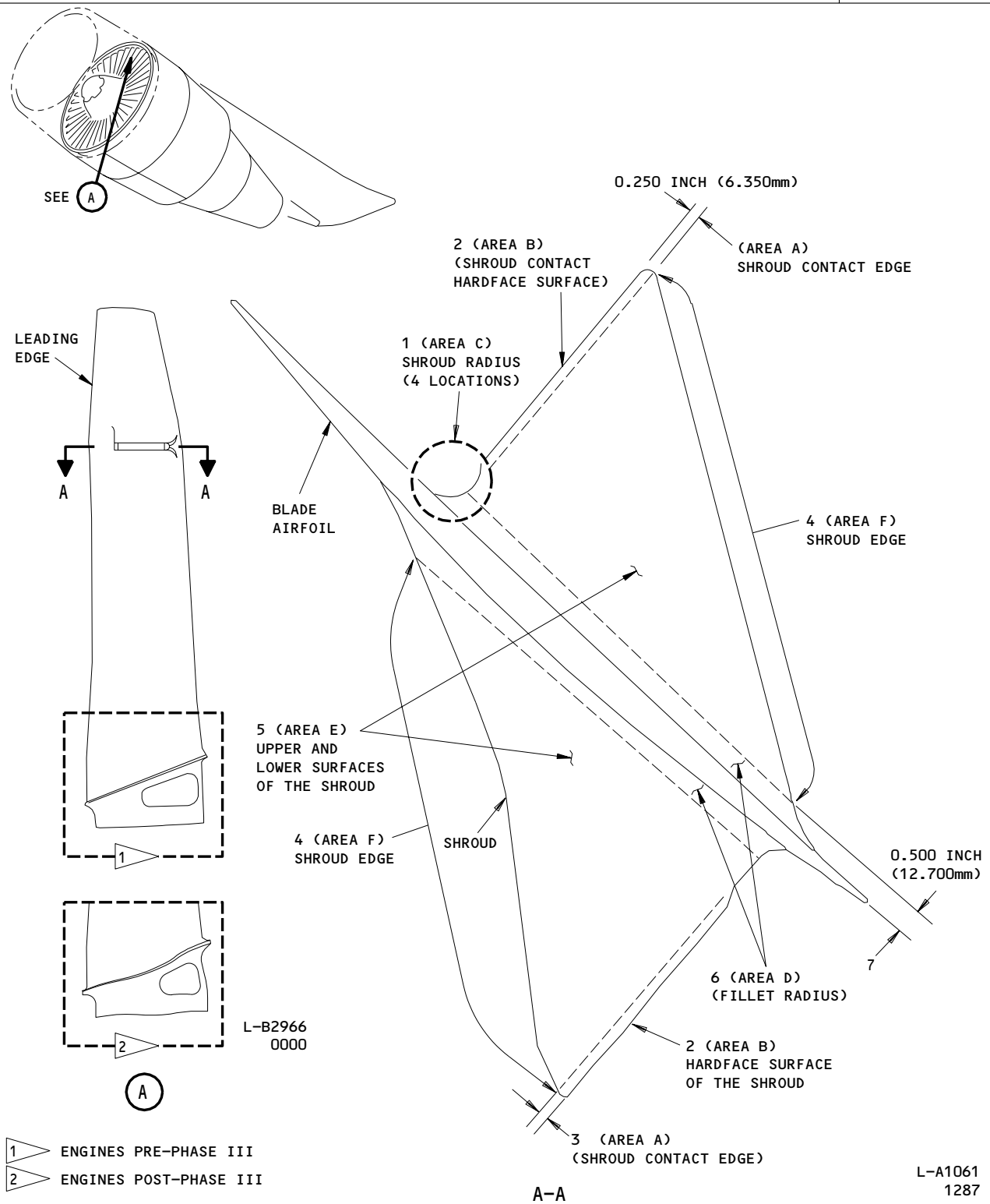
(8) Do this inspection procedure again until you examine all the fan blades.

(9) If you are done with the fan blade inspections, do the steps that follow:

(a) Remove the protective mat from the inlet cowl.

MECH	INSP

(b) Remove the DO-NOT-OPERATE tag from the ENG START switch on the overhead panel, P5.



Names of the Fan Blade Shroud Areas
Figure 603

STATION		BOEING CARD NO.
TAIL NO.	SAS 767 TASK CARD	72-434-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		NOTE		013	NOV 10/96

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 1 HPC VARIABLE STATOR VANES		ALL	NOTE

ZONES	ACCESS PANELS
415 416	

MECH	INSP	MPD ITEM NUMBER

INSPECT THE ENGINE 1 HIGH PRESSURE COMPRESSOR VARIABLE STATOR VANE UNISON RINGS FOR DAMAGED VANE ARMS AND LOOSE RIVET PINS PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG A72-419. N72-35-00-A

INTERVAL NOTE: SB PW4ENG A72-419 (PRATT & WHITNEY). SERVICE BULLETIN RECOMMENDS INITIAL INSPECTION AT THE NEXT A-CHECK (NOT TO EXCEED 500 FLIGHT HOURS), WITH SUBSEQUENT INSPECTIONS AT EVERY 4TH A-CHECK (NOT TO EXCEED 1600 FLIGHT HOURS).

ENGINE NOTE: SB PW4ENG 72-432 (PRATT & WHITNEY). APPLICABLE TO PRATT & WHITNEY PW4000 SERIES ENGINES THAT HAVE NOT INCORPORATED THIS SERVICE BULLETIN OR EQUIVALENT.

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-434-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		NOTE		013	NOV 10/96

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 2 HPC VARIABLE STATOR VANES		ALL	NOTE

ZONES	ACCESS PANELS
425 426	

MECH	INSP	MPD ITEM NUMBER
		N72-35-00-A

INSPECT THE ENGINE 2 HIGH PRESSURE COMPRESSOR VARIABLE STATOR VANE UNISON RINGS FOR DAMAGED VANE ARMS AND LOOSE RIVET PINS PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG A72-419.

INTERVAL NOTE: SB PW4ENG A72-419 (PRATT & WHITNEY). SERVICE BULLETIN RECOMMENDS INITIAL INSPECTION AT THE NEXT A-CHECK (NOT TO EXCEED 500 FLIGHT HOURS), WITH SUBSEQUENT INSPECTIONS AT EVERY 4TH A-CHECK (NOT TO EXCEED 1600 FLIGHT HOURS).

ENGINE NOTE: SB PW4ENG 72-432 (PRATT & WHITNEY). APPLICABLE TO PRATT & WHITNEY PW4000 SERIES ENGINES THAT HAVE NOT INCORPORATED THIS SERVICE BULLETIN OR EQUIVALENT.

STATION		BOEING CARD NO.
TAIL NO.	SAS 767 TASK CARD	72-435-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		NOTE		013	NOV 10/96

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 1 HPC ROTOR BLADE LOCKS		ALL	NOTE

ZONES	ACCESS PANELS
415 416	

MECH	INSP	MPD ITEM NUMBER
		N72-35-00-B

INSPECT THE ENGINE 1 HIGH PRESSURE COMPRESSOR ROTOR BLADE LOCKS FOR FRACTURE AND AIRFOIL IMPACT DAMAGE DUE TO LOCK MATERIAL LIBERATION, AND APPLY ROTOR BLADE LOCK SEALANT / ADHESIVE AS NECESSARY, PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG 72-445.

INTERVAL NOTE: SB PW4ENG 72-445 (PRATT & WHITNEY). SERVICE BULLETIN RECOMMENDS INITIAL INSPECTION AND SEALANT / ADHESIVE INSTALLATION WITHIN 500 FLIGHT HOURS (OR WITHIN 1500 FLIGHT HOURS IF LOCTITE 640 WAS INCORPORATED), WITH SUBSEQUENT BLADE LOCK INSPECTIONS EVERY 300 FLIGHT CYCLES.

ENGINE NOTE: SB PW4ENG 72-373 (PRATT & WHITNEY). APPLICABLE TO PRATT & WHITNEY PW4000 SERIES ENGINES THAT HAVE NOT INCORPORATED THIS SERVICE BULLETIN OR EQUIVALENT.

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-435-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		NOTE		013	NOV 10/96

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	ENGINE 2 HPC ROTOR BLADE LOCKS		ALL	NOTE

ZONES	ACCESS PANELS
425 426	

MECH	INSP	MPD ITEM NUMBER
		N72-35-00-B

INSPECT THE ENGINE 2 HIGH PRESSURE COMPRESSOR ROTOR BLADE LOCKS FOR FRACTURE AND AIRFOIL IMPACT DAMAGE DUE TO LOCK MATERIAL LIBERATION, AND APPLY ROTOR BLADE LOCK SEALANT / ADHESIVE AS NECESSARY, PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG 72-445.

INTERVAL NOTE: SB PW4ENG 72-445 (PRATT & WHITNEY). SERVICE BULLETIN RECOMMENDS INITIAL INSPECTION AND SEALANT / ADHESIVE INSTALLATION WITHIN 500 FLIGHT HOURS (OR WITHIN 1500 FLIGHT HOURS IF LOCTITE 640 WAS INCORPORATED), WITH SUBSEQUENT BLADE LOCK INSPECTIONS EVERY 300 FLIGHT CYCLES.

ENGINE NOTE: SB PW4ENG 72-373 (PRATT & WHITNEY). APPLICABLE TO PRATT & WHITNEY PW4000 SERIES ENGINES THAT HAVE NOT INCORPORATED THIS SERVICE BULLETIN OR EQUIVALENT.

STATION		BOEING CARD NO.
TAIL NO.	SAS 767 TASK CARD	72-436-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 1		NOTE		013	NOV 10/96

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
BORESCOPE	ENGINE 1 HPT STAGE 1 BLADES		ALL	NOTE

ZONES	ACCESS PANELS
411	417AL 418AR

MECH	INSP	MPD ITEM NUMBER
		N72-00-00-E

BORESCOPE CHECK THE ENGINE 1 HIGH PRESSURE TURBINE STAGE 1 BLADES TO INSPECT FOR INDICATIONS OF AIRFOIL CONCAVE-SIDE BULGING PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG 72-422.

INTERVAL NOTE: SB PW4ENG 72-422 (PRATT & WHITNEY). SERVICE BULLETIN RECOMMENDS INITIAL INSPECTION WITHIN 1000 FLIGHT CYCLES WITH SUBSEQUENT INSPECTIONS EVERY 250 FLIGHT CYCLES (125 FLIGHT CYCLES IF BLADE TOTAL CYCLES EXCEEDS 1900). CYCLES MAY BE ROUNDED TO THE NEAREST A-CHECK.

ENGINE NOTE: SB PW4ENG 72-466 (PRATT & WHITNEY). APPLICABLE TO PRATT & WHITNEY PW4000 SERIES ENGINES THAT HAVE NOT INCORPORATED THIS SERVICE BULLETIN OR EQUIVALENT.

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	72-436-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGINE 2		NOTE		013	NOV 10/96

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
BORESCOPE	ENGINE 2 HPT STAGE 1 BLADES		ALL	NOTE

ZONES	ACCESS PANELS
421	427AL 428AR

MECH	INSP	MPD ITEM NUMBER

BORESCOPE CHECK THE ENGINE 2 HIGH PRESSURE TURBINE STAGE 1 BLADES TO INSPECT FOR INDICATIONS OF AIRFOIL CONCAVE-SIDE BULGING PER THE INSTRUCTIONS CONTAINED IN PRATT & WHITNEY SERVICE BULLETIN PW4ENG 72-422. N72-00-00-E

INTERVAL NOTE: SB PW4ENG 72-422 (PRATT & WHITNEY). SERVICE BULLETIN RECOMMENDS INITIAL INSPECTION WITHIN 1000 FLIGHT CYCLES WITH SUBSEQUENT INSPECTIONS EVERY 250 FLIGHT CYCLES (125

FLIGHT CYCLES IF BLADE TOTAL CYCLES EXCEEDS 1900). CYCLES MAY BE ROUNDED TO THE NEAREST A-CHECK.

ENGINE NOTE: SB PW4ENG 72-466 (PRATT & WHITNEY). APPLICABLE TO PRATT & WHITNEY PW4000 SERIES ENGINES THAT HAVE NOT INCORPORATED THIS SERVICE BULLETIN OR EQUIVALENT.

EFFECTIVITY